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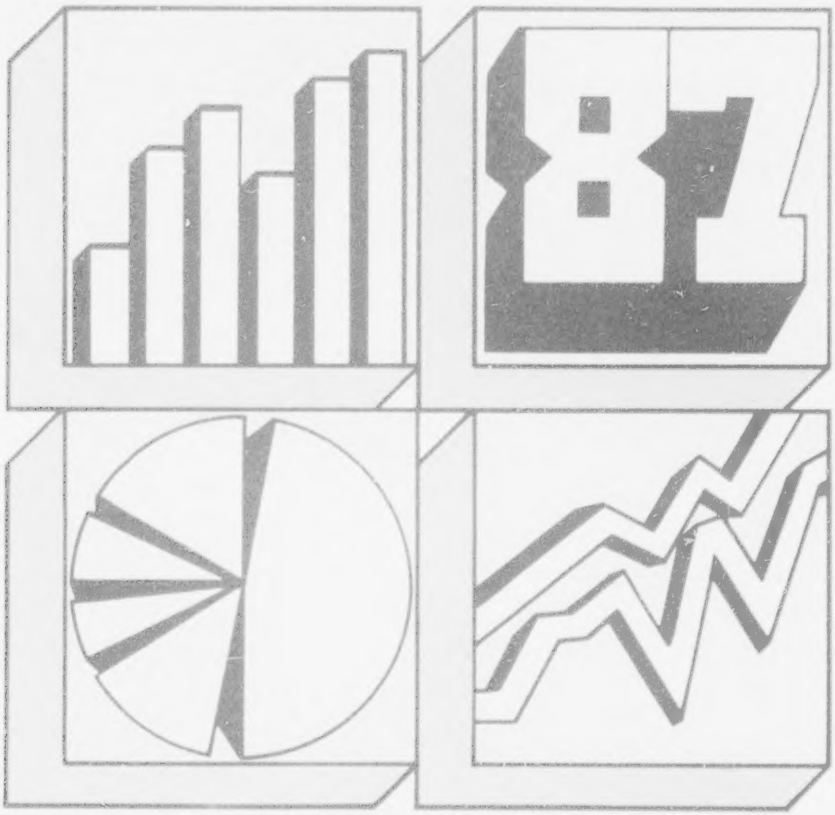
International Business Forms Industries, Inc.

PERSPECTIVE



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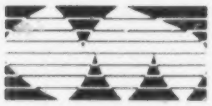

International Business Forms Industries, Inc.

PERSPECTIVE 87

This is the 1987 edition of an annual publication prepared at the direction of the IBFI Financial Management & Economic Research Committee for the benefit of the industry and its customers. Each edition contains a detailed review of the previous year's results and a five-year demand forecast. In addition, the results of any new research undertaken by the staff during the preceding twelve months are presented in these pages.

The author is responsible for all of the estimates and opinions in this volume. All charts and graphs are the work of the author. Every effort has been made to ensure accuracy but it of course cannot be guaranteed.

Doug Taylor

IMPLEMENTATION BY THE IBFI STAFF

Douglas C. Taylor ..... Director, Economic and Market Research
Cathleen R. Marros ..... Economic and Market Research Associate

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EXECUTIVE SUMMARY

Although the U.S. business forms industry is still experiencing healthy growth, individual forms companies must also contend with sliding profitability, fierce competition and lowered entry barriers. Industry-wide trends in profitability and productivity will force forms manufacturers to choose between various competitive strategies in order to remain successful in the 1990's.

Distribution strategies will play a key role in any forms company's future success. Currently, forms industry distribution channels are in a transition phase between the few, clearly defined channels of the late 1970's and the multiple distribution channels of the next decade.

As the forms industry's principal product lines move closer to maturity, the overall growth of the traditional forms industry will more closely match that of the overall economy. In the U.S., this trend is evident in the wave of mergers and acquisitions that has swept up a number of forms manufacturers and their suppliers in the last two years.

Another "macro-trend" that will increasingly impact the forms industry is the restructuring of corporate America, a process which is already underway. Because the drive to cut costs is a cornerstone of this process, forms manufacturers will be under increased pressure to demonstrate the cost-effectiveness of *their* solutions to customers' information needs.

The cost-cutting mania that corporate America has embraced presents significant opportunities for new technologies to gain a bigger share of the office information market. Among these new technologies, Electronic Data Interchange represents possibly the greatest long-term threat to the traditional forms industry.

Forms industry growth in the U.S. will average between 4-5% for the remainder of this decade—assuming the current economic expansion does not run out of steam in 1988 or 1989. (Projected growth for the industry, by major product line, is shown below.) Forms industry growth will slow in the 1990's, as forms manufacturers compete head-to-head with computer companies, software houses and even quick printers for a slice of the office information market.

U.S. BUSINESS FORMS SALES, 1986-1991*

	1986	1987	1988	1989	1990	1991
Custom Continuous	$2,820	$2,980	$3,161	$3,262	$3,330	$3,428
Stock Continuous	1,515	1,566	1,640	1,777	1,803	1,904
Unit Sets	1,470	1,499	1,539	1,562	1,546	1,576
Salesbooks, Pegboard	300	315	335	346	350	364
Total	6,105	6,360	6,675	6,947	7,029	7,272

*In Millions of 1986 Dollars at Shipment Values; Estimates for 1987-1991 Are IBFI Projections

Source: IBFI

THE COMPETITIVE LANDSCAPE

Ten years ago, the forms industry was characterized by explosive growth, high profitability, high entry barriers, and relatively stable competition. Today, the industry is experiencing healthy growth, sliding profitability, fierce competition, and lowered entry barriers.

Over the next ten years, forms industry growth will track the growth of the overall economy even more closely than it does today. That's because the forms industry will continue its march toward maturity—and the prime characteristic of a mature industry is that it grows only as fast as the overall economy (e.g., the automobile industry).

A number of trends have surfaced in the last few years that will make their impact on the forms industry by the mid-1990's. For example, by 1995, an industry shake-out of unknown dimensions will almost certainly have taken place. Following this shake-out, the number of U.S. forms manufacturers may be closer to 250, rather than the 450 forms companies in operation today.

Also, most of the advances in laser printing technology will have been made—and the resulting displacement of forms demand will have been assimilated by the forms industry. Additionally, the infrastructure for local area networks and electronic data interchange will be in place—but, by 1995, the full impact of these developments may still be years away.

The mix of distribution channels in the forms industry will also have changed. Some forms manufacturers may be selling to the short-run market through commercial printers; there will be fewer forms distributors, but their proportion of industry sales may be greater than their current 35% share. These and other trends must be examined by anyone who hopes to answer the following questions:

- "In 1995, what will the forms industry look like?
- Who will be its dominant players?"

Decisions made and strategies embraced by forms industry managers over the next few years will answer both of these questions.

Figure 1 illustrates the squeeze on profitability that the forms industry will experience for the remainder of this decade. The graph shows pre-tax return on sales for two groups of companies: (a) participants in the IBFI *Ratio Study* and (b) six of the major forms companies (annual revenues over $100 million) in the U.S.

The *Ratio Study* sample is weighted toward smaller companies, hence the gap in return on sales for the period 1978-81 is expected. During this period, price competition in the forms industry was minimal; because small companies typically have lower overhead costs to absorb than large firms, they often have an edge in profitability—as long as they can raise their prices to compensate for rising materials costs.

Figure 1 shows that, in this decade, small firms' profitability peaked in 1983, precisely when disinflationary forces began to be felt in virtually all sectors of the U.S. economy. If not for the three paper price increases during 1986, the disparity in return on sales between small and large firms would have probably continued to widen last year.

In the U.S., the industry-wide drive toward cost control and improved productivity was touched off by the 1981-82 recession. During that harsh downturn, a lot of industries discovered that, just to survive, some of the basic assumptions about their business had to be challenged. As the economy recovered in 1983 and 1984, competition from foreign producers intensified; as a result, the process of challenging these outdated assumptions continued.

Today, it is in full flower: companies with corporate headquarters in cities such as New

York are moving to less expensive cities in the South. Corporate staffs are being cut to the bone, even following profitable quarters. Relentless pressure is being placed on suppliers to cut prices and improve quality.

Technological developments—especially in the areas of telecommunications and computers—have paved the way for much of the corporate down-sizing that has occurred. With the technologies now available, it doesn't matter where a corporate office is located, as long as it can utilize these communications and information processing technologies. The only constraining factor on a company's choice of headquarters location is the availability of skilled information workers.

What external factors have led to this state of affairs? In the period 1961-1980, corporate America went on a buying binge—adding data processing, financial analysis, training, and human resources as discrete functions. Further, many companies believed it was absolutely necessary that all of these functions be handled by specialists; of course, this resulted in duplication of effort and a tremendous increase in overhead costs. But, the inflationary environment that characterized this period enabled most companies to simply pass these additional costs on to their customers. Inflation covered these and other sins by providing stockholders with illusory corporate profits.

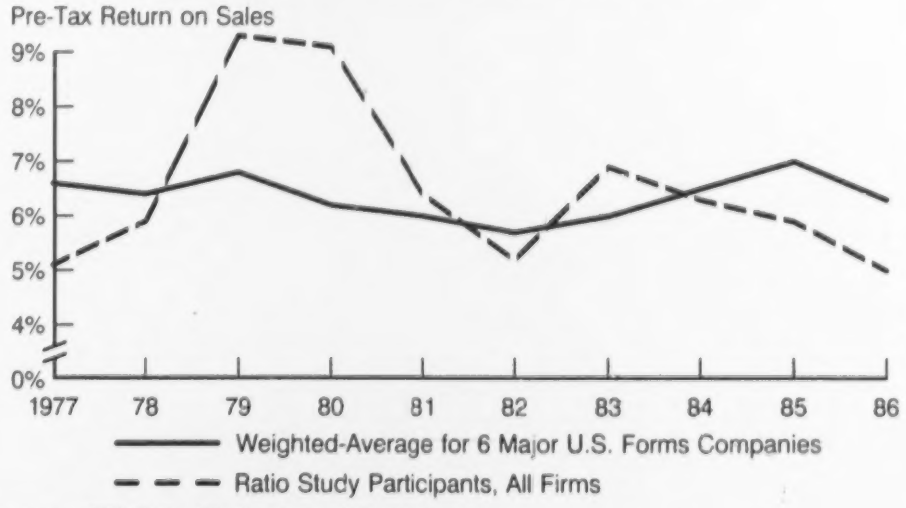
For the forms industry, the long-term implications of these profitability and productivity trends will vary according to size of company. Big companies (over $100 million) must become more efficient in order to protect their margins and stay profitable. Medium-size companies ($20 million - $100 million) may have to choose one of two directions: grow bigger through acquisitions or narrow their focus (and thus stabilize sales growth through specialization). Small companies will have one alternative—find a niche that no other competitor can serve as well.

Figure 2 shows trends in forms industry employment since 1972. The graph illustrates a key fact concerning forms industry productivity: while the industry grew rapidly during the 1970's, it was able to avoid the accumulation of new layers of corporate bureaucracy: the rate of growth for total employment in the forms industry was approximately the same as the rate of growth for production workers only.

The lone exception to this trend occurred during the mid 1970's, when the industry was in its golden era of double-digit growth. By 1982, reality (in the form of a recession) had in-

FIGURE 1

FORMS INDUSTRY PROFITABILITY

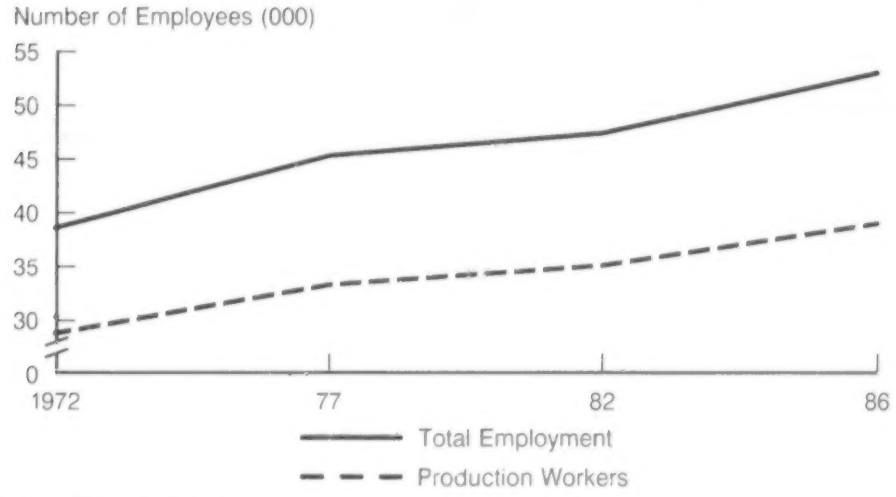


Sources: IBFI Ratio Study, Annual Reports.

truded and the industry's total employment moved back in line with the growth in production workers. Figure 3 tells the same story from a different angle.

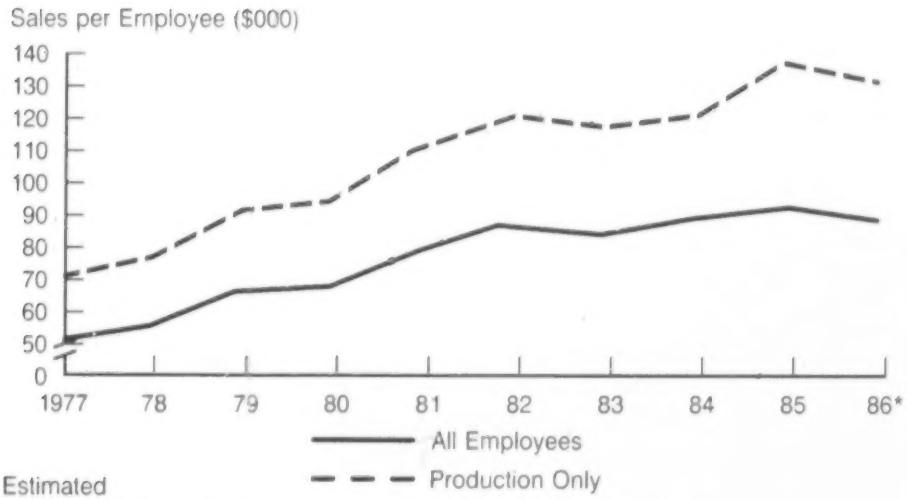
It seems safe to conclude that productivity in the forms industry has been fairly positive over the last 15 years. This is partly because the very nature of the forms business absolutely demands close monitoring of the customer's needs; hence a lean and mobile staff is almost a necessity. Forms companies that violate this commandment go out of business.

FIGURE 2
FORMS INDUSTRY EMPLOYMENT



Source: Census Bureau

FIGURE 3
SALES PER EMPLOYEE



* Estimated
Source: IBFI Ratio Study

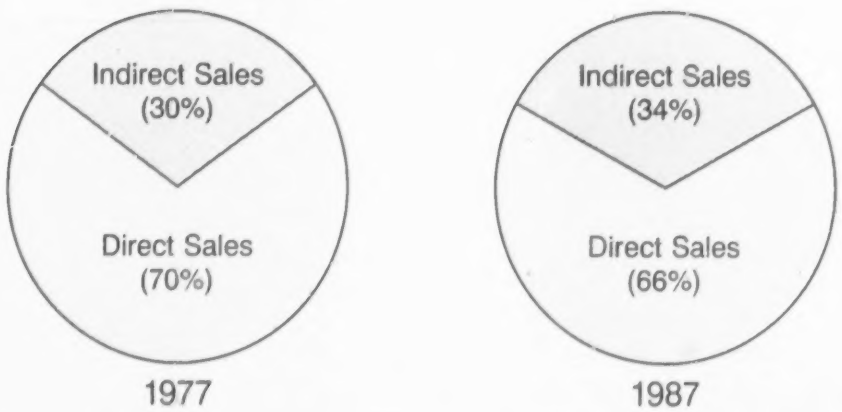
The percentage of industry sales sold through distributors has increased somewhat over the last 10 years, as shown in Figure 4. Sales direct to the end user through a company's captive sales force, telemarketing or catalog staff now account for about two-thirds of total industry sales. Is the apparent trend depicted in Figure 4 likely to continue, or has the distributors' share of the forms market peaked?

The answer to this question will be decided by the same market forces that will drive forms industry growth over the next 5-10 years. Among these is the evolution of the short-run market, which in turn impacts the industry's average order size. Since the early 1980's, the conventional wisdom in this industry has been that average order sizes are dropping, due primarily to the proliferation of the microcomputer. As average order sizes have fallen, the percentage of industry sales accounted for by distributors, telemarketing reps and catalog operations has risen. But when the average order size stabilizes, there may be a shake-out among direct-selling companies that have invested heavily in telemarketing and catalogs at the expense of their sales force.

Another force that will impact industry distribution channels is the trend toward consolidation. As more direct-selling companies merge or are acquired, the pool of skilled but superfluous sales reps will increase. Many of these individuals will choose to go into business for themselves and become independent distributors. Another trend to watch is the emergence of forms distributor franchisors. Approximately 30 distributor franchisees under two separate franchisors are now in operation in the U.S. On the surface, the idea makes sense: the franchisor provides the administrative and paperwork skills that most salespeople lack—leaving the salesperson with more time to sell. If these two trends gain momentum, the general level of professionalism among independent distributors should increase.

FIGURE 4

FORMS INDUSTRY SALES, DIRECT VS. INDIRECT



Source: IBFI Sales Index

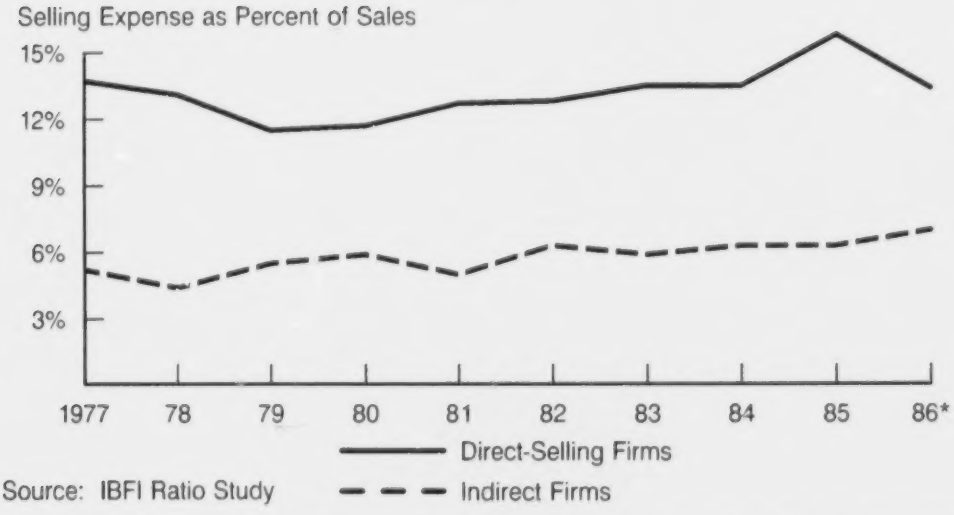
Figure 5 and 6 show selling expense and sales per sales employee for direct and indirect companies. The declining average order size in the 1980's is clearly reflected in the falling productivity of direct salespeople (Figure 6).

The same forces that are producing growth in the telemarketing and catalog channels are also producing change in the industry's traditional channel of selling through a direct sales force. In 1986, IBFI conducted a sales compensation survey; 42 direct selling manufacturers participated, representing about 25% of total industry shipments and approximately 2,500 salespeople. For the companies in the sample, the average salesperson earned about $37,000 in 1985 on total sales of $510,000.

Results of this survey showed some interesting variations in the sales compensation figures for companies of different sizes. For instance, the average salesperson in medium-size companies earned $40,000 on sales of almost $473,000, while the average salesperson in large companies earned $41,000 on sales of nearly $730,000. Thus it seems clear that many of the smaller forms manufacturers should consider revising their compensation plans so that high-producing salespeople are rewarded and the complacent salesperson is replaced.

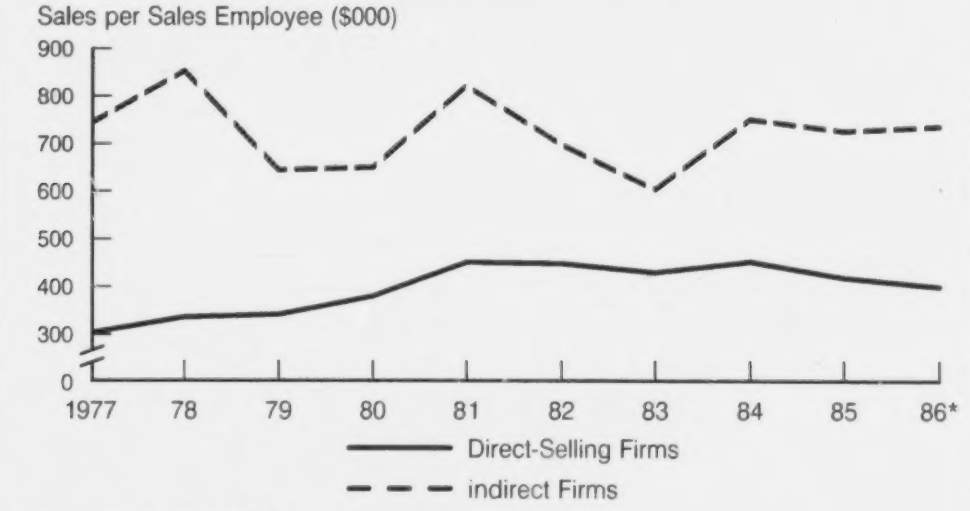
Forms companies are also showing increased willingness to reach outside the forms industry to hire new marketing talent. This trend is consistent with the ongoing transition of the business form from a purely industrial good to a quasi-consumer good.

FIGURE 5
SELLING EXPENSE



Source: IBFI Ratio Study

FIGURE 6
SALES EMPLOYEE PRODUCTIVITY



Source: IBFI Ratio Study

TECHNOLOGY ISSUES

This chapter examines the outlook for computer printers and developments in office automation. It also reviews the prospects for Electronic Data Interchange to seriously impact the forms industry.

Printer Outlook

Shipments of computer printers in the U.S. in 1986 equalled approximately 5.74 million units, according to the Computer and Business Equipment Manufacturers Association (CBEMA). Over 90% of these were serial printers.

For the forms industry, developments with respect to serial and page printers are most important. (CBEMA projects that demand for line printers peaked in 1986; by 1990, this segment's estimated share of total printer shipments will be less than 2%).

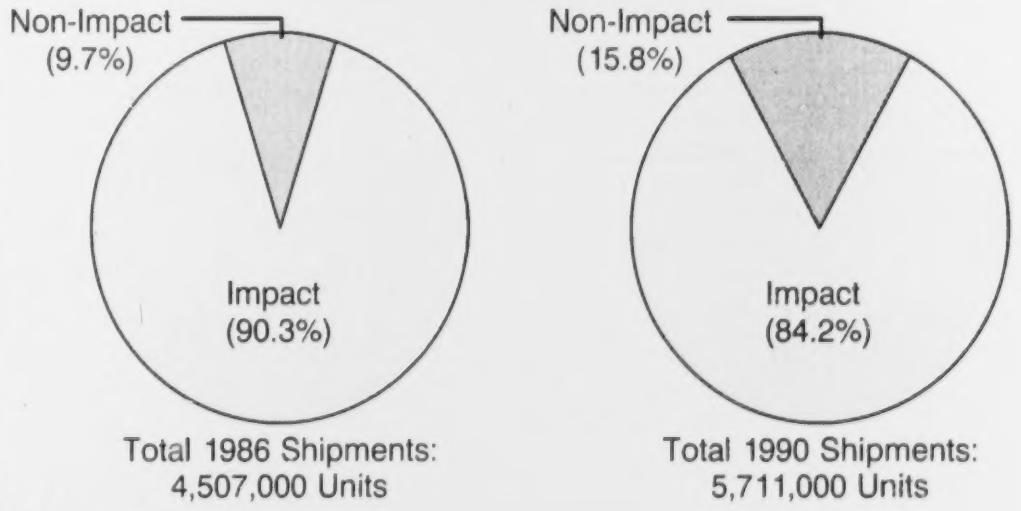
Figure 7 presents serial printer shipments (impact and non-impact) for 1986 and 1990. Figure 8 shows how the installed base of serial printers will change by 1990.

The War for the Desktop, Phase Two

In April 1987, the company that six years earlier introduced the world's best-selling personal computer made this announcement: "Here we go again." IBM's new line of personal computers (System/2) is touted to be one that brings the power of a mainframe to the desktop; among its other features, (closed-end architecture to discourage clones, 3 1/2" hard diskettes instead of the standard 5" floppies), the new IBM series of personal computers also has a "mouse"—a device that allows the PC user to enter commands without touching the keyboard.

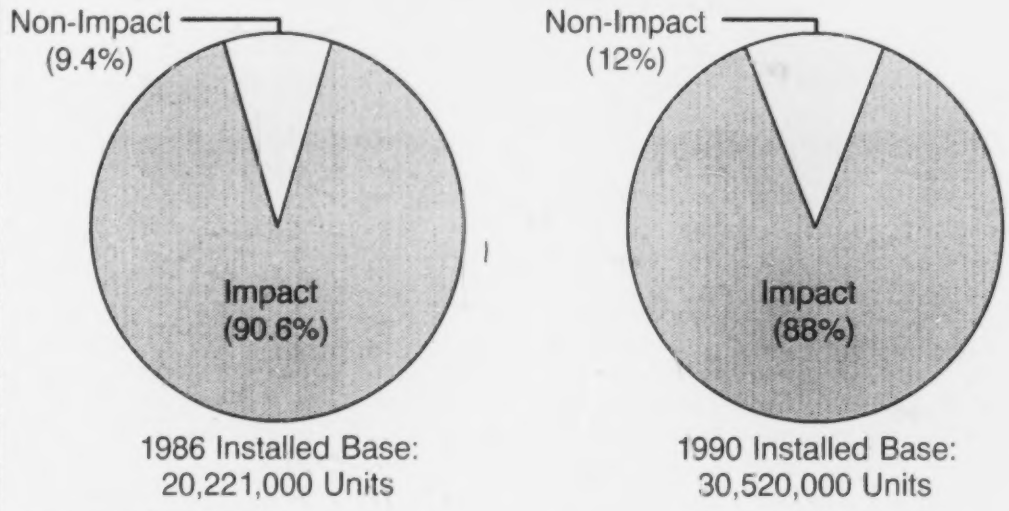
FIGURE 7

SERIAL PRINTER SHIPMENTS, IMPACT VS. NON-IMPACT



Source: Dataquest

FIGURE 8
INSTALLED BASE OF SERIAL PRINTERS, IMPACT VS. NON-IMPACT



Source: Dataquest

IBM's inclusion of the mouse feature signals the start of Phase Two of the personal computer revolution. Phase One began in 1981-82 when U.S. businesses, through their purchase of millions of PCs, accepted the notion that a computer could increase the productivity of most office workers. So, they snapped up millions of personal computers—but with nary a thought as to how the PC on Ann's desk in Marketing could be linked up with the one on Bob's desk in Purchasing. Nor did they consider what to do if Ann quit. Would her replacement be as inquisitive a learner of the PC's software commands and codes as Ann was? If not, why couldn't the machine be easier to use? From these dilemmas arose the need for local area networks and "user friendly" features like the mouse. Compatibility and a "transparent user interface" will be the hallmark of Phase Two of the War for the Desktop.

A local area network (LAN) is simply a type of software that links up one or more computers in a given location (or locations) —thus allowing users to share data bases, transmit messages electronically, and perform other functions. In a phrase, it is a means of helping an organization to work smarter.

There are several LAN vendors, with IBM's Token Ring system being the most visible. There is no industry standard for LANs, however, and until one emerges the impact of local area networks on forms demand is extremely difficult to estimate. To date, the promise of the LAN concept has yet to be fulfilled. Vendors have simply not yet delivered on their plans to connect their computers into organization-wide networks.

From various sources, it is estimated that, of the U.S. installed base of 25 million personal computers, approximately 3% of them are part of a network.

Electronic Data Interchange

In 1981, a committee of the American National Standards Institute (ANSI) completed the initial set of Electronic Data Interchange (EDI) standards for all industries. By 1984, additional standards had been approved and the first EDI software system was installed and operational in a "Fortune 100" company.

EDI is a means of transmitting electronically-based documents (invoices, purchase orders, etc) **between organizations.** Since 1984, a number of industries (including autos, steel, and chemicals) have developed or implemented plans for EDI systems. Their rationale is simple: EDI is viewed as a means of reducing the enormous costs associated with routine business-to-business transactions such as invoices, statements and shipping orders. The bulk of the costs associated with these transactions, of course, is in the people who must be employed to process these paper transactions. EDI eliminates the human element in many of these transactions by replacing it with a machine-readable, encoded document transmission from one computer to another.

As the EDI concept has been adoped by various industries, software houses have sprung up to provide the systems and infrastructure needed to make EDI work. Double-digit growth rates in EDI usage through the 1990's have been predicted by some consulting sudies; for instance, a study by A. D. Little forecasts that, in 1995, 50% of grocery-industry business transactions will be handled via EDI.

How should a typical forms industry executive react to EDI? Before he or she creates his next 10-year strategic plan, the following points should be considered:

- In the near term, EDI's greatest potential area of application will be in highly concentrated industries, such as auto, steel and grocery. In these industries, a handful of large companies are doing business with hundreds or thousands of small vendors; this gives the large company the influence needed to induce small companies to purchase the required EDI software. For this reason, we may see the growth in EDI usage soar dramatically for a few years and then stagnate once a saturation point among large companies has been reached.

- The above scenario is analogous to the impact on the forms industry from high-speed laser printers; since their introduction in the late 1970's, these systems have had their greatest impact on high-volume forms accounts, which by definition are limited in number.

- For users, the promise of EDI rests in the potential cost savings that can be realized from implementing such a system. In corporate America, the drive to cut costs in order to stay competitive has really just begun; so far, most of the cost-cutting has been in the form of lay-offs and offers of early retirement. The *next* phase will be to achieve cost savings by training a lean staff of white collar workers to work smarter and be more productive. EDI ties in perfectly with this goal. Hence, forms industry managers should realize that many of their large corporate customers will be automatically receptive to the concept of EDI.

As with the laser printer, EDI is the result of technology developed *entirely* outside the forms industry. Forms industry managers must confront the fact that their industry is increasingly subject to outside forces of technology over which they have neither control nor influence. The best they can do is to monitor the technology and continually question the assumptions on which their current markets rest. Are these assumptions based on outdated technology? Over the next 7-8 years, many forms manufacturers will be answering this question in the affirmative.

Managing Technology and Change

During this decade, the relationship between forms demand and computer technology has changed dramatically. From the mid 1960's to about 1980, the relationship was a rather simple one: as computing power went up and costs went down, more and more businesses (and divisions within large corporations) purchased computer systems—thereby pushing up the demand for continuous forms. With the exception of high-speed laser printers from Xerox (9700), IBM (3800) and others, little displacement of traditional forms demand was felt. For forms manufacturers, the trick was simply to meet this rising demand: by building new plants, buying new presses and adding extra shifts. Manufacturing was King.

The micro-computer changed all that. Its power, flexibility and portability freed millions of business men and women from the tyranny of the Data Processing department, and simultaneously converted them into potential forms buyers.

For forms manufacturers, this has complicated enormously the distribution of their products. No longer can they simply train their sales reps to sell an industrial product to forms management professionals or data processing directors. Simply manufacturing the forms isn't enough to assure success. Marketing has become increasingly important to the success of every major forms company.

Of course, marketing does not equal selling. Rather, it makes selling possible by anticipating changes in the marketplace and converting them into opportunities. In the forms industry, a company that is market-driven must understand the revelant technologies—in non-impact printing, telecommunications, and office automation.

Peter Drucker writes that "technology is no more mysterious or unpredictable than developments in the economy or society; it is capable of rational anticipation and demands rational anticipation."

With respect to the impact of technology on the forms industry, managers of forms companies have no choice but to anticipate it. If they fail to make the effort because they conceive that technolgy is too mysterious, too unpredictable—then why not do the same with every other part of the business? Can predicting technolgy be more difficult than predicting the course of interest rates or the value of the dollar? Not likely.

The optimal solution for forms industry managers is to monitor the relevant technology so that its impact can be estimated. Once this is done, a manager can determine whether the supposed impact can be converted into a business opportunity. The forms industry has a long record of doing exactly that in numerous areas.

Drucker also advises that the key to business success is not to solve problems. No one ever made a fortune by solving a problem, since this merely returns you to the status quo. The key to success, says Drucker, is to pursue opportunities.

THE ECONOMIC SCENE

Every economic era is represented by one or more symbols that our modern society uses to represent the workings of the real economy. From 1945 until the 1980's, these symbols included the inflation rate, the unemployment rate, and interest rates. Which of these took priority in a given era depended on the political climate in Washington, the general mood of the nation, and other qualitative factors.

In the last three years, a fourth symbol has been added: the U.S. trade deficit. These four general indicators of the country's economic health and well-being are significant in that Congress and the general public have developed a *comfort zone* for each indicator. As long as the indicator falls within the comfort zone, the public is satisfied. When the public is satisfied, Congress is silent.

For inflation, the comfort zone is currently between 3-5%; for the unemployment rate, it's between 5.5—9.9%; for interest rates, it's a prime rate between 6.5—9.75%. And for the trade deficit, the comfort zone is anything under $100 billion per year.

Through May 1987, the trade deficit was the only one of the four symbols outside its comfort zone. In fact, the annual trade deficit has not been under $100 billion since 1984. This is why Congress has been holding hearings on trade and proposing protectionist trade bills for most of the last two years. It also explains why the Reagan administration slapped an unprecedented 100% tariff on certain electronic consumer products imported from Japan.

No economist worth his or her salt believes that such measures will have a long-term beneficial impact on the trade deficit. In fact, many economists maintain that the burgeoning U.S. trade deficit is merely a reflection of the vigor of the U.S. economy as compared to the limp economies of our major trading partners. For instance, in 1986 industrial production in Japan declined by 0.03%. In Canada it increased by just 0.4%, in France by 0.9% and in West Germany by 1.7%. Thus, even if more U.S. producers were export-minded, they would have few foreign markets to sell to.

Trade Deficit and Tax Reform

The size of the trade deficit itself has no impact on the economy, since this is merely a number reflecting past economic activity. What is important is the reaction of Congress and the Federal Reserve Board to the trade deficit (or to any piece of economic news). If Congress reacts by passing a protectionist trade bill, the economic impact of such an action could be very significant indeed.

It is virtually certain that Congress will pass a major trade bill in 1987. This bill, if it becomes law, will have the effect of shielding some American industries from foreign competition, at least in the short term. Several thousand jobs may be saved, but American consumers will foot the bill for every one of them through higher prices on domestic goods.

Two major domestic spending bills (one for roads, the other for water projects) were already passed by Congress in early 1987 over President Reagan's veto. These budget busters, combined with the expected trade bill, will heighten inflationary expectations for 1987 and 1988.

Most of the attention given to the Tax Reform Act of 1986 (TRA) has centered on the reduction in marginal income tax rates for individuals, the elimination of many tax shelters, and the rise in business taxes. Another aspect of TRA has received much less attention, but may have a greater economic impact than the revision in tax rates. It is the higher cost of capital that U.S. businesses must shoulder as a result of TRA.

The increase in the cost of capital is the result of two changes incorporated in the tax law. First, the accelerated depreciation schedules enacted in 1981 have been scaled back;

secondly, the Investment Tax Credit (ITC) has been eliminated.

It is difficult to find a sound economic reason behind these two revisions. Before TRA, the cost of capital in the U.S. was already much higher than in many other Western industrial countries. The lower the cost of capital, the easier it is for business to invest in new equipment, expand capacity and employ more workers. In the manufacturing sector, new investment in plant and equipment is absolutely critical if a company is to remain competitive. Nevertheless, Congress decided to overlook these concerns in favor of the promise of additional revenues; this promise is apt to be unfulfilled.

Outlook for Interest Rates and Inflation

The May 1987 announcement by Paul Volcker, Chairman of the Federal Reserve Board, that he would not seek a third term as Chairman caused world financial markets to tremble for a day or so. The value of the dollar fell and the bond market took a plunge, but both markets recovered after a few days. Volcker's proposed replacement, Alan Greenspan, is well known in Wall Street and in Washington, and the presence of a known quantity certainly provides a calming influence. Still, the absence of Volcker should put upward pressure on interest rates—until Greenspan establishes his own record.

In April 1987, many U.S. banks raised their prime rate slightly to 7.75%—the first rise in the prime rate since 1984. By the end of May, the prime rate had inched up to 8.25%. Does this mean that the three-year slide in interest rates has bottomed out? Not necessarily.

If the U.S. economy does not respond favorably in the second half of 1987 to the new tax incentives, interest rates could settle still lower. But if the economy starts picking up again, the demand for credit will also rise—thus pushing interest rates higher.

A further complication is caused by the inflow of foreign capital to the U.S. This capital, most of which has come from Japan, has contributed greatly to the easing of interest rates; without these capital inflows, borrowing by the U.S. government to finance the federal budget deficit would have "squeezed out" most private borrowers, and sent interest rates up. But if U.S. interest rates fall too low, foreign investors will look elsewhere to get a better return on their investment.

Perspective 86 noted that "interest rates should either decline slightly or remain flat for the rest of 1986". As it turned out, they declined slightly, as shown in Figure 9. For 1987, interest rates are likely to rise—but only by 1 to 2 percentage points over 1986.

Even if the economy really begins to bubble in the second half of 1987, interest rates should not approach double-digits. That is because *real* interest rates are still quite high. For most of this century, real interest rates (the nominal interest rate minus inflation) have equalled 2-3%; last year, the real interest rate was close to 8%. The ongoing process of reducing real interest rates to their historical norms will put a brake on the upward movement of nominal interest rates.

Thanks to the oil price war in 1985-86, the overall rate of U.S. inflation last year was under 2% (*Perspective 86* predicted an inflation rate of 3% or less). But last year's low inflation rate can be traced to an unusual collapse of commodity prices (led by oil, of course). Actually, from the middle of 1985 to the present, the Federal Reserve has been steadily pumping up the nation's money supply. Such "priming of the pump" normally foretells higher inflation.

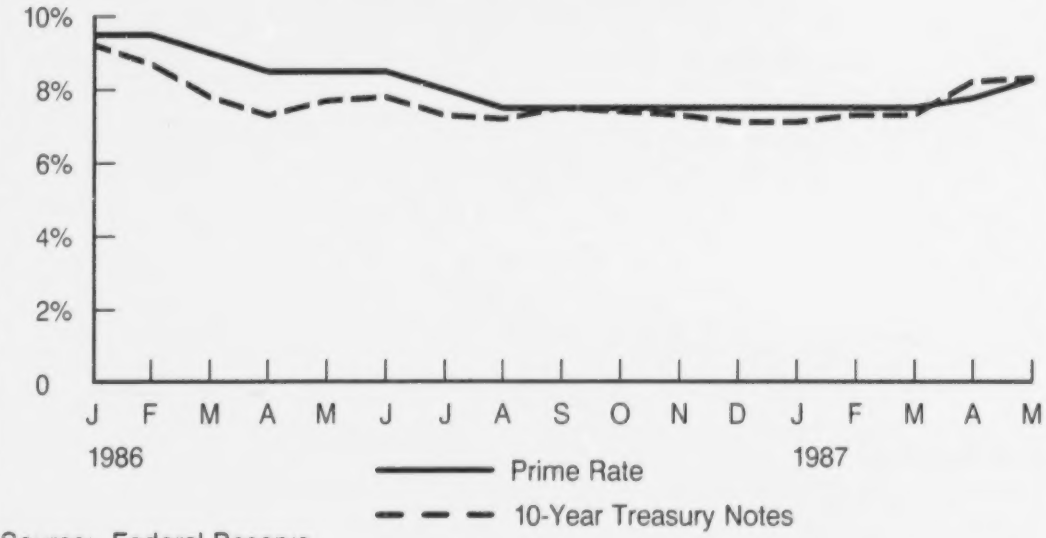
At the same time, the continuing weakness in the value of the dollar leaves U.S. producers with room to raise their prices. As a result of these factors, the U.S. inflation rate for 1986 will climb back to a 3.5—4.5% range.

Through 1991, inflation may get as high as 5-6%, but not for a sustained period. The era of runaway inflation is dead, thanks to the tremendous overcapacity that exists in most of the world's basic industries. Investors who are banking on this development as an easy means of paying off their debts are fooling themselves.

The Federal Deficit and the Dollar

In 1986 Congress passed and Reagan signed the Gramm-Rudman bill, which provides for specific deficit reduction targets through 1991. Also, the ratio of the federal deficit to GNP has remained in the 5.0—5.5% range since 1983.

FIGURE 9
SHORT- AND LONG-TERM U.S. INTEREST RATES



Source: Federal Reserve

This ratio is very important, since it shows whether the deficit is under control (and thus manageable) or whether it is out of control. And, even though the deficit reduction targets set by the Gramm-Rudman law will never be met by Congress, the downward trend in the size of the federal deficit (even in nominal terms) is clearly visible: by 1990, the Congressional Budget Office projects a budget deficit of $140 billion.

In sum, there is a good word to be said about the federal deficit: that word is "shrinking."

The value of the U.S. dollar on international currency markets would be seriously threatened by a significant increase in the federal deficit. Rightly or wrongly, foreign markets view the deficit as a barometer of the fiscal responsibility of the U.S. Government. If the deficits get out of control, inflationary expectations will rise and the dollar's value will fall.

Through May 1987, the dollar was equal to 144 Japanese Yen, compared to a value of 171 Yen in May 1986 (see Figure 10). Where will the dollar settle? Will it be at 125 yen? 160 yen? The difference could spell ruin for thousands of companies in the U.S. and Japan.

The rise of the yen in the 1980's is, possibly, a prelude to the yen's eventual replacement of the U.S. dollar as the world's number one currency—in the next century. In the year 2007 Tokyo, not New York, may be the financial center of the world.

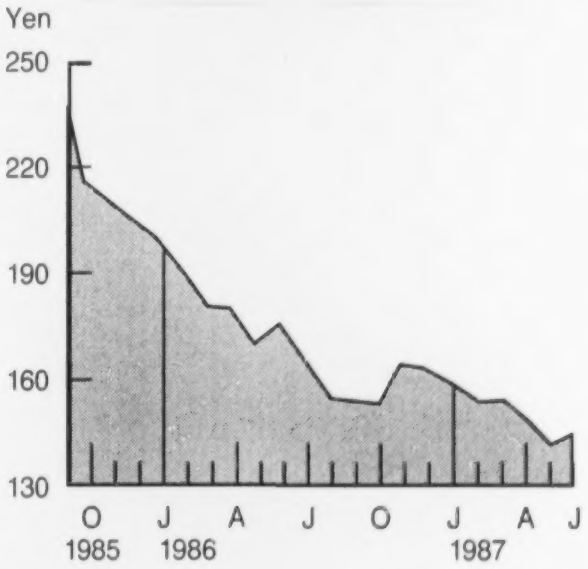
The Changing Face of Business

The restructuring of corporate America is well underway. Good or bad, the process has begun. It is characterized by these trends:

- Increased rate of bankruptcies and new ventures
- Down-sizing of corporate bureaucracies
- Wave of mergers and acquisitions.

All of these trends will impact the forms industry over the next 5-10 years. The dramatic increase in the number of bankruptcies in recent years has been paralleled by a rapid rise in new business start-ups. In 1985, there were

FIGURE 10
VALUE OF U.S. DOLLAR VS. JAPANESE YEN



Source: Wall Street Journal

66,650 bankruptcy petitions filed by U.S. business, compared to 56,425 in 1982 and 36,450 in 1980. Many of the new start-ups are being produced by men and women who are Fortune 500 refugees as a result of the down-sizing phenomenon mentioned above. These entrepreneurs are providing a much-needed source of innovation and creativity in the U.S. economy; they are part of the reason why the rate of job creation in the U.S. during the 1980's has exceeded that of any other Western industrial economy.

Over the last five years, many forms companies have seen valued accounts disappear almost overnight as a result of a merger or acquisition. Eventually, this trend will slow: there are only so many companies available for sale, and many states have approved restrictive covenants that make hostile takeovers more difficult. But the forms-buying requirements of the newly restructured companies will have changed in the process.

One likely result of this change is an increase in the professionalism of forms buyers, making the competitive situation in the forms business even tighter. The down-sizing of corporate headquarters staff by many large companies may result in the forms-buying process being reduced, in some instances, to a push-button procedure performed by a junior purchasing agent using a PC and forms management software.

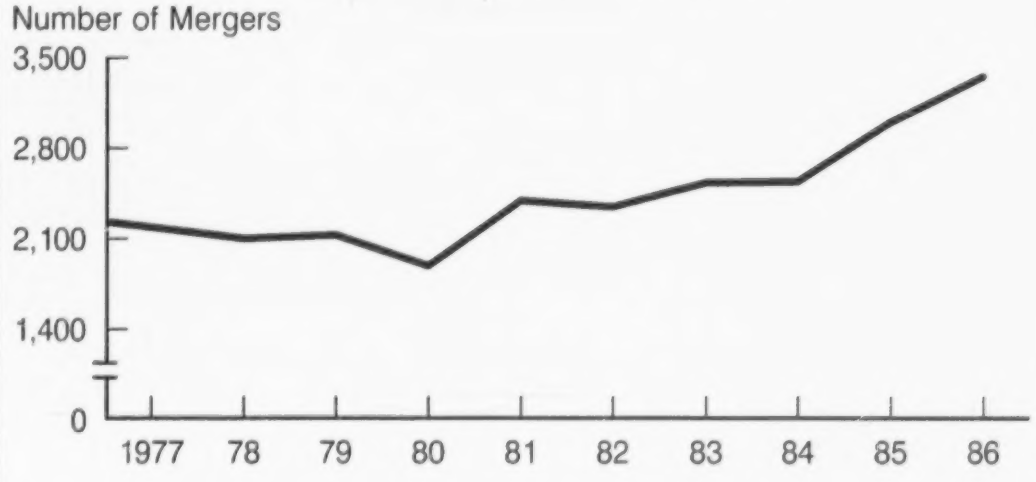
Forms managers need to consider the impact of such developments on their particular markets and the overall competitive environment in the forms industry.

Impact of Mergers and Acquisitions on Forms Industry

Figure 11 traces the growth in merger activity among U.S. companies over the last 10 years. During this period, the number of mergers has steadily increased since 1980, save for the 1981-82 recession.

For the forms industry, this surge in mergers and acquisitions has resulted in fewer high volume corporate accounts; on the supply side, it may mean increased competition within the forms industry from larger competitors—and less bargaining power with suppliers, as *their* numbers decrease.

FIGURE 11
U.S. MERGERS, 1977-86



Source: W.T. Grimm, Co., Chicago

Merger and acquisition activity in the U.S. economy moves in cycles. In 1969, a total of 6,107 mergers were completed in the U.S.—82% more than occurred in 1986. As the graph makes evident, we are currently in a consolidation (or buying) phase. Eventually the wheel will turn and the economy will enter a divestiture (or selling) phase.

The year 1986 saw more mergers in the forms industry than in any year in recent memory. Three major forms companies were acquired: Burrough's U.S. forms division (by Standard Register), The Arnold Corporation (by Reynolds & Reynolds), and Safeguard Business Systems (by a private investment concern). In addition, several successful, closely-held forms companies changed hands; the timing of these transactions was probably influenced by an increase in the capital gains tax that took effect January 1, 1987.

Among suppliers to forms manufacturers, two major press manufacturers merged, as Hamilton was acquired by Stevens. The paper industry was also influenced by these trends of consolidation and cost-cutting: International Paper (IP) acquired Hammermill in 1986; then, in 1987, IP packed up its headquarters operation in New York City and moved to Memphis, Tennessee. Georgia Pacific closed its Stamford, Connecticut, headquarters and announced it was moving to Atlanta. Crown Zellerbach was bought and then dismantled by corporate raider Sir James Goldsmith.

For the forms industry, these changes in the competitive environment will undoubtedly have long-range implications. They include the following:

- The stakes of staying in the game among the major "direct" manufacturers have gone up. To compete, these companies must utilize multiple distribution channels while simultaneously developing or exploiting specific market niches (e.g.; vertical markets, forms management programs, variable imaging technology).

- Internal efficiency (of manufacturing, administration, sales and marketing) will become the key determinant of whether an individual forms company is able to maintain acceptable earnings growth. Consequently, the level of management talent

attracted to the forms industry will rise steadily, as forms companies invest today so they can survive tomorrow. Here, bigger companies will have an edge because they can pay higher salaries and provide better fringe benefits than smaller companies. Smaller companies may have to offer key employees an equity stake if they are to retain top performers.

- Innovation in products, customer service and manufacturing techniques will assume greater importance.

All of these trends have already surfaced in many U.S. industries—especially those whose products are sensitive to foreign competition. The forms industry does not face this threat, since the cost of shipping finished-products from abroad far outweighs their value in domestic markets. However, this does not mean the forms industry is immune to developments in the global economy.

It is, likely that the forms industry will attract substantial foreign investment in the next few years. After all, the most mobile of all the factors of production is capital. These investors will bring more than their money; they may help provide the new ideas and new blood needed to push American industry away from the "stable" manufacturing process introduced and perfected by Henry Ford and toward the flexible manufacturing techniques popularized by Japan (e.g., JIT inventory control, cross-training of workers, flexible work rules).

Ostensibly a manufacturing industry, the forms industry is, in reality, a service industry; therefore, it is in a unique position to lead the way for other American industries that must learn how to combine efficient manufacturing techniques with superior customer service in order to prosper.

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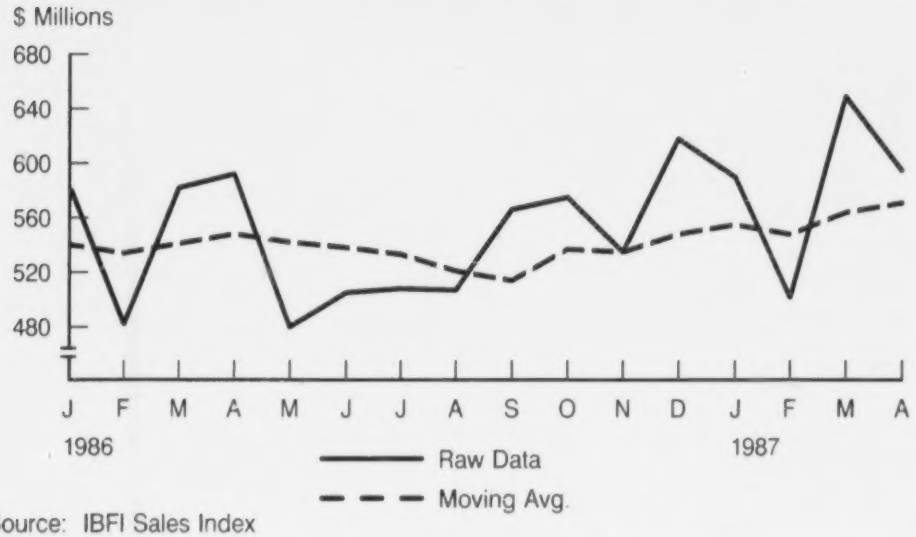
INDUSTRY PERFORMANCE REVIEW

This section presents data on forms industry activity during 1986 and into the first four months of 1987. Most of the information provided in these graphs is taken from ongoing monthly and quarterly member surveys conducted by IBFI; other sources include the Bureau of Labor Statistics and the American Paper Institute.

Figure 12 shows the normal degree of month-to-month fluctuations in industry sales during 1986. As indicated by the moving average, forms demand has been quite healthy since the fourth quarter of 1986.

FIGURE 12
MONTHLY RETAIL FORMS SALES



Source: IBFI Sales Index

In 1986, pricing conditions in the forms industry eased over the previous year (Figures 13 and 14, page 23). The recovery in the stock continuous segment was the most dramatic: in 1985 the PPI indicator for this product line *fell* 6%; in 1986, it rose 5.6%.

Of course, the price that is received for a product is only half of the story. The other half is the cost of goods sold. Faced with a compound paper price increase of approximately 16% during 1986, forms industry managers had no choice but to watch their margins dwindle.

In 1987, plans by the paper mills to begin a new round of price increases fell through in January; new price increases will most likely be announced in the third quarter.

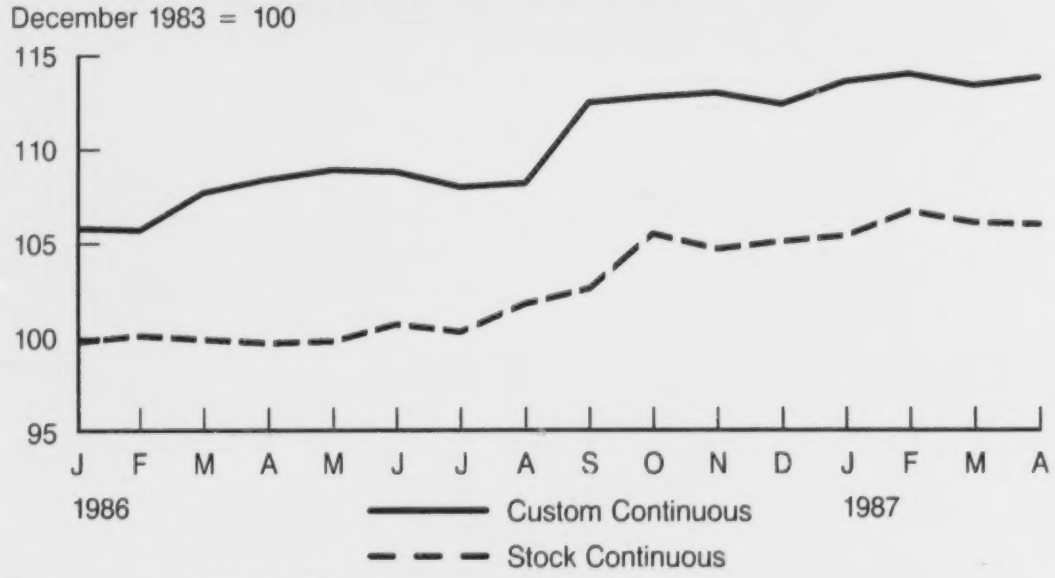
Figures 15 and 16 (see page 24) present capacity utilization data for 1986, while Figures 17 and 18 (see page 25) provide sales and gross profits per press hour. These four graphs largely support the trend toward consolidation that is sweeping the industry; they also foretell just how difficult the competitive situation of small forms companies (less than $5 million annual sales) will be for the remainder of this decade.

Figure 19 (see page 26) shows shipments of computer-type paper by U.S. paper mills to forms manufacturers as well as tonnage converted by forms manufacturers. It shows a fairly close correlation between these two indicators; interestingly, the two steep drops during 1986 in the amount of paper shipped to forms manufacturers were both followed by a healthy rise in paper shipments. This reflects the market's ability to absorb *some* of the paper price increases that were accepted last year. However, the paper industry's inability to get any price increase accepted in the first half of 1987 shows that the forms market was not able to accommodate *all* of the increase. (For companies reporting to the IBFI *Business Conditions Survey,* the average price paid for 15 lb white form bond rose over 20% from the fourth quarter of 1985 through the fourth quarter of 1986).

Paper inventory levels in 1986 are displayed by company size in Figure 20 (see page 27). Most companies maintained a 4 to 7 week inventory of paper during the year.

FIGURE 13

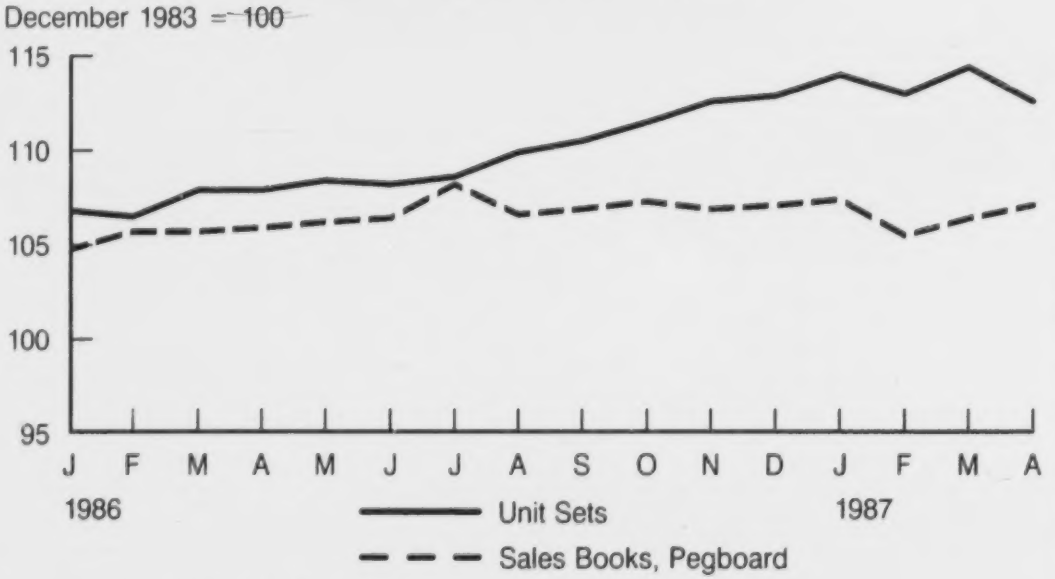
PRODUCER PRICE INDICES FOR STOCK AND CUSTOM CONTINUOUS



Source: Bureau of Labor Statistics

FIGURE 14

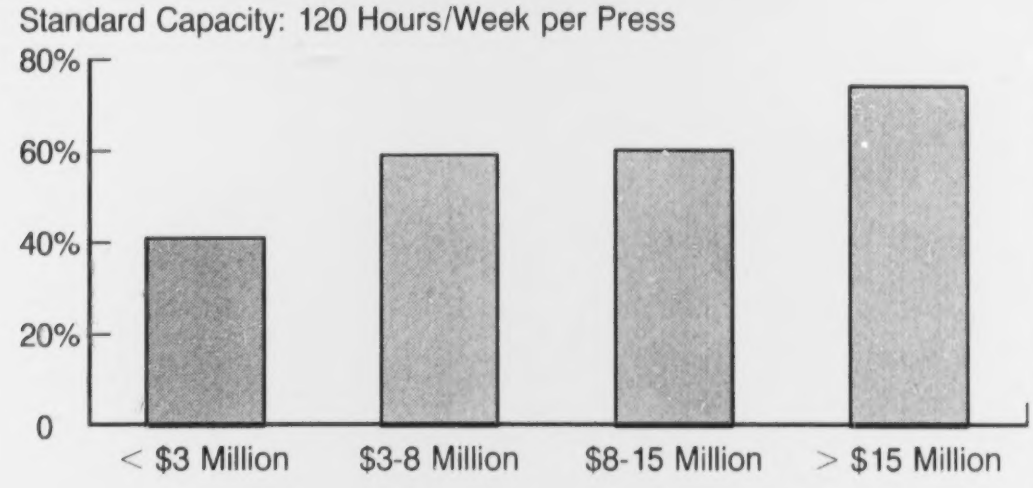
PRODUCER PRICE INDICES FOR UNIT SETS AND SALESBOOKS



Source: Bureau of Labor Statistics

FIGURE 15

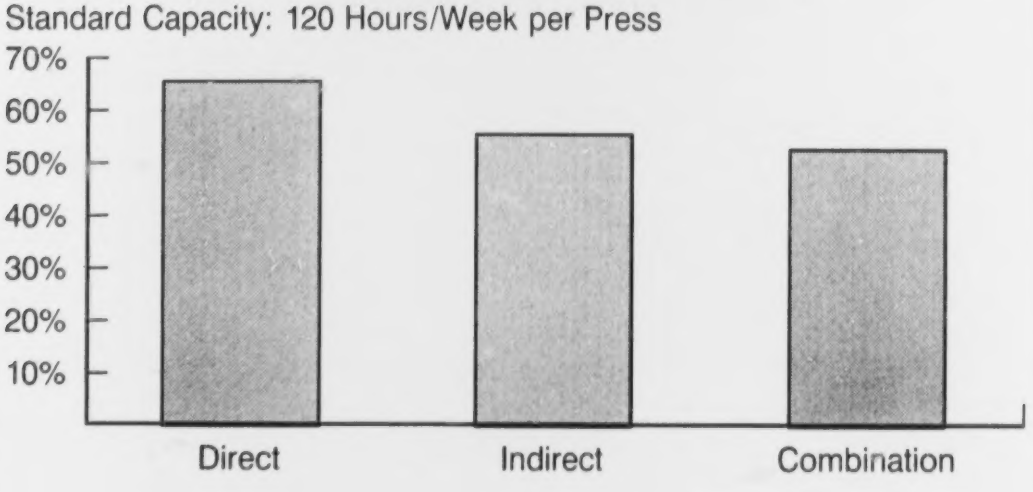
MEDIAN CAPACITY UTILIZATION BY COMPANY SIZE, 1986



Source: IBFI Business Conditions Survey

FIGURE 16

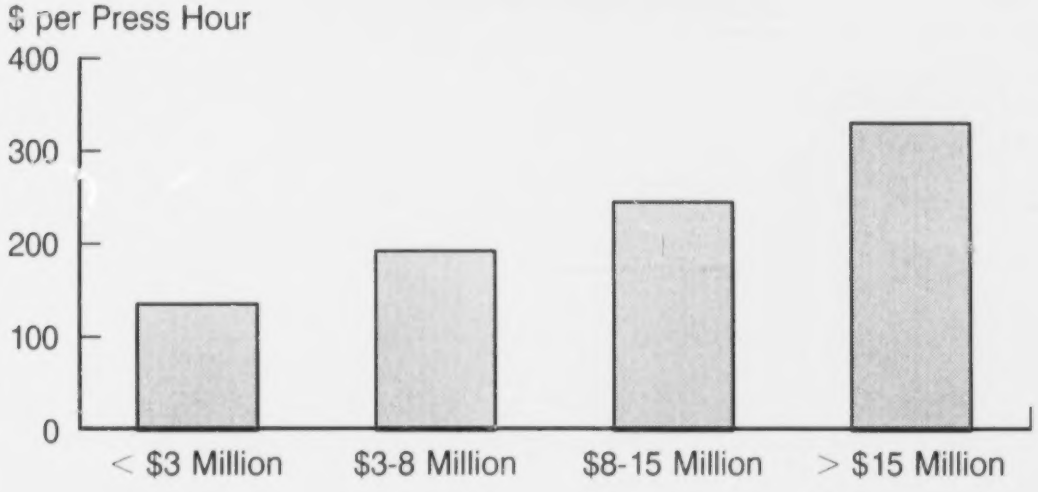
MEDIAN CAPACITY UTILIZATION BY DISTRIBUTION CHANNEL, 1986



Source: IBFI Business Conditions Survey

FIGURE 17

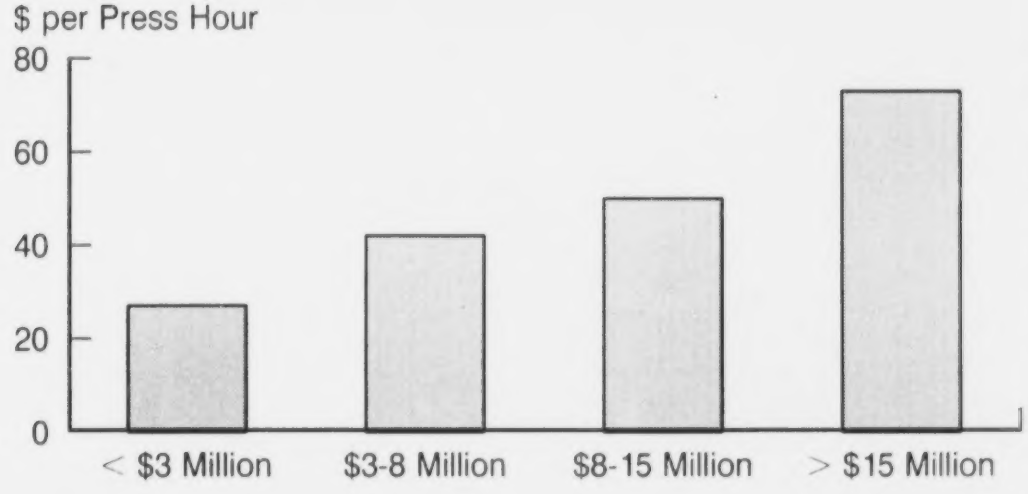
SALES PER PRESS HOUR BY COMPANY SIZE, 1986



Source: IBFI Business Conditions Survey

FIGURE 18

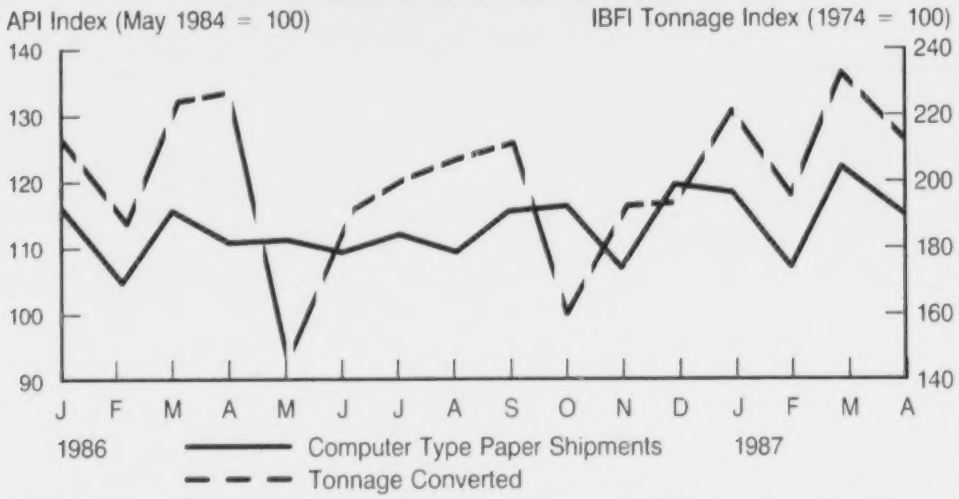
MEDIAN GROSS PROFITS PER PRESS HOUR BY COMPANY SIZE, 1986



Source: IBFI Business Conditions Survey

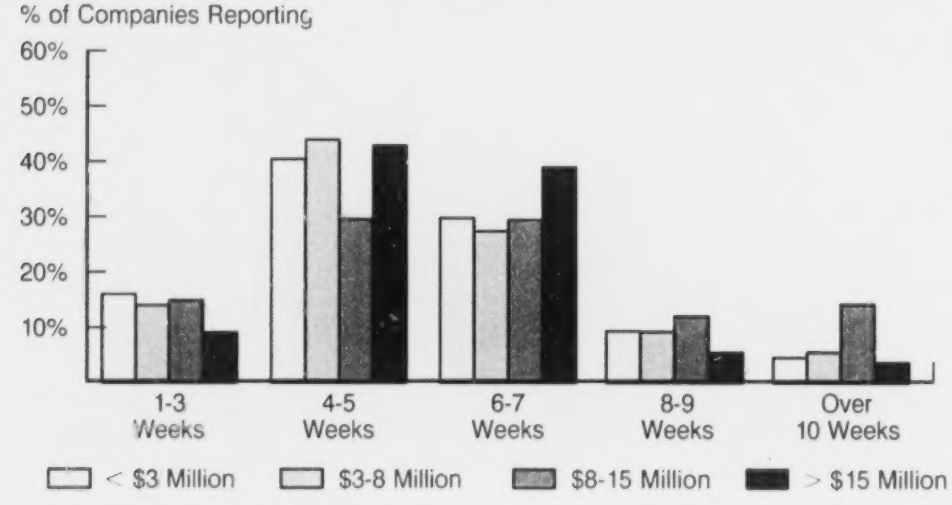
FIGURE 19

SHIPMENTS OF COMPUTER-TYPE PAPERS TO FORMS MANUFACTURERS VS. TONNAGE CONVERTED OR SHIPPED BY FORMS MANUFACTURERS*



* Computer-Type Paper Includes Form Bond, Carbonless and Uncoated Groundwood
Source: American Paper Institute, IBFI

FIGURE 20
RANGES IN WEEKS OF PAPER INVENTORY
1986



Source: IBFI Business Conditions Survey

U.S. BUSINESS FORMS FORECAST

U.S. forms demand will grow at an annual rate of between 4-5% for the remainder of this decade. As shown in Tables 1 and 2, 1988 is projected to be the industry's strongest year since 1984, followed by a slight contraction in growth in 1989 and a significant slowdown in 1990.

The most important assumption behind this forecast is that the U.S. economy will continue its current expansion through 1989. For this to happen, a number of events must occur:

- **The debt crisis must be managed properly.** (This crisis is the result of large loans made in the 1970s by U.S. banks to Third World and East European nations). If this crisis is mismanaged, one of two things will happen. Either one or more major U.S. banks will go under or a host of less developed countries will simultaneously go bankrupt. Either event will send shock waves through the world's financial markets, but the second alternative is the lesser evil. That's because the confidence of investors in the fundamental soundness of the U.S. political and financial system is the main support of the world economy; a run on Bank America or Citicorp could destroy much of that confidence in the space of several weeks. Citicorp's decision in mid-1987 to increase dramatically its loan-loss reserves indicates that the crisis is manageable.

- **Increases in federal spending by the U.S. government must remain under control.** As a percentage of GNP, federal spending has averaged about 23.5% since 1982; this compares to a ratio of 18-19% in the 1970's. As long as this ratio is stable, the federal deficit will remain under control. An out-of-control federal deficit will lead to higher interest rates, followed by a severe recession.

- **The value of the U.S. dollar on foreign currency markets must become more predictable.** The roller-coaster ride that the dollar has taken since 1983 has whipsawed most of the major industries in the U.S., Europe and Asia. *Balance* must return to the system of foreign exchange rates; until it does, short-term thinking by individual companies will crowd out the long-range planning that is essential to the development of new markets. Without new markets, economies stagnate.

Mechanically, the means to achieve the desired balance in foreign exchange rates is simple: the U.S., Japan and other Western economic powers would have to agree to adopt a single monetary standard (such as gold, or a gold-backed U.S. dollar—as was the case from 1945-1973). Politically, such a solution is nowhere in sight. That is why the instability in the foreign exchange system is the world's most pressing financial problem.

The current expansion should finally run out of steam by 1990; by then, we should begin to see a forms industry whose shape is remarkably different from the forms industry of 1981. Its annual growth will surely be less, but the efficiency and productivity of its market leaders will be greater. There will be fewer companies and fewer people employed by the industry, but companies and their employees will work together more effectively. These developments will occur not out of choice but of necessity.

The leading forms companies of the 1990's will be competing head-to-head with computer companies, software houses and even quick printers for a slice of the office information market. These competitors will take advantage of laser and other non-impact printing technologies, as well as local-area networks and other

office automation technologies. These technologies will enable them to maximize their particular expertise (e.g., in systems development, finance, tax accounting, etc.) and provide a package of solutions for their customers.

For instance, there are currently numerous companies that have expertise in the field of income tax return preparation for businesses. At least one of these companies is selling not only this expertise but also the ability to create all of its customers' tax returns via an on-line network linked to a bank of laser printers. In essence, this company has "exploded" the notion of what a tax consultant should be.

It seems logical to assume that more and more companies will seek and find opportunities to explode traditional thinking and deliver a *system* of solutions to their customers. *That* is how value will be added in the office papers marketplace of the 1990's.

Technology will provide these companies with the means to enter these markets.

In the very long term, as we move out of this decade and toward the "cut-sheet" world, the greatest threat to the forms industry is not the erosion of its traditional markets. Rather, it is that its leaders will not capitalize on the *new* markets that will be opening up—created by innovative thinking applied to a changing technological and business environment.

TABLE 1
U.S. BUSINESS FORMS SALES, 1986-1991*

	1986	1987	1988	1989	1990	1991
Custom Continuous	$2,820	$2,980	$3,161	$3,262	$3,330	$3,428
Stock Continuous	1,515	1,566	1,640	1,777	1,803	1,904
Unit Sets	1,470	1,499	1,539	1,562	1,546	1,576
Salesbooks, Pegboard	300	315	335	346	350	364
Total	6,105	6,360	6,675	6,947	7,029	7,272

*In Millions of 1986 Dollars at Shipment Values; Estimates for 1987-1991 Are IBFI Projections

Source: IBFI

TABLE 2

U.S. BUSINESS FORMS SALES, YEAR-TO-YEAR CHANGE, 1986-1991

	1986-87	1987-88	1988-89	1989-90	1990-91	*1987-1991
Custom Continuous	5.7%	6.1%	3.2%	2.1%	2.9%	21.6%
Stock Continuous	3.4%	4.7%	8.4%	1.5%	5.6%	25.8%
Unit Sets	2.0%	2.7%	1.5%	(1.0)%	1.9%	7.3%
Salesbooks, Pegboard	5.0%	6.3%	3.3%	1.2%	4.0%	21.3%
Total	4.2%	5.0%	4.1%	1.2%	3.5%	19.3%

*Total Compounded Growth

Source: IBFI

APPENDIX
HISTORICAL STATISTICS

Sales Data, Manifold Business Forms
(Millions of Dollars at Shipment Values)

	Unit Sets	Custom Continuous	Stock Continuous	Sales And Other Books	TOTAL
1958	159.6	150.4	18.8	45.2	374.0
1963	265.5	239.4	53.9	39.6	598.4
1967	361.7	391.9	98.0	44.2	895.8
1970	468.4	493.4	185.0	52.3	1,199.1
1971	486.4	518.9	190.0	47.0	1,242.3
1972	547.3	578.2	204.9	51.5	1,381.9
1973	630.2	733.7	282.1	59.8	1,705.8
1974	776.2	966.1	432.2	78.8	2,253.3
1975	781.6	944.9	413.7	78.3	2,218.5
1976	849.1	970.3	521.1	84.8	2,425.3
1977	958.1	981.1	633.9	129.5	2,702.6
1978	1,065.1	1,194.8	680.3	137.9	3,078.1
1979	1,248.7	1,466.9	891.4	154.2	3,761.2
1980	1,323.1	1,657.9	1,031.7	174.1	4,186.8
1981	1,417.2	1,823.7	1,186.5	175.7	4,603.1
1982	1,390.3	1,886.0	1,229.3	184.0	4,689.6
1983	1,250.0	2,020.0	1,305.0	260.0	4,835.0
1984	1,350.0	2,465.0	1,490.0	280.0	5,585.0
1985	1,415.0	2,650.0	1,530.0	295.0	5,890.0
1986	1,470.0	2,820.0	1,515.0	300.0	6,105.0

International Business Forms Industries, Inc.

International Offices:
1730 North Lynn Street, Suite 501
Arlington, Virginia 22209-2096 U.S.A.
Telephone (703) 841-9191 • Telex 440172

European Offices:
8-10 Wolborough Street
Newton Abbot, Devon TQ12 1JJ England
Telephone (0626) 62022 • Telex 62529 TAPPER G

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THE LATEST SCOOP

1987 ◆ EDITION

The International Ice Cream Association (IICA) launched its ICE CREAM FOR AMERICA promotion in 1983 to increase consumer awareness and consumption of ice cream. IICA market research has shown that 98 percent of Americans enjoy ice cream -- and it is truly America's most loved dessert and snack food. The ICE CREAM FOR AMERICA campaign serves as an industry-wide umbrella program for promoting the benefits of ice cream and consists of three integral parts: a nationwide public relations program conducted throughout the summer; branded marketing and promotional activities conducted by IICA members; and an extensive national advertising effort initiated by the National Dairy Board.

In 1987, IICA cooperated with the National Dairy Promotion and Research Board in the planning, development and implementation of the most extensive nationwide advertising effort for ice cream to date. Member companies of the IICA greatly increased their own branded advertising expenditures to over $120 million and the National Dairy Board dedicated $5 million to a nonbranded advertising program developed around the theme "TASTE SUMMER." The national television campaign tied in with branded advertising and the ICE CREAM FOR AMERICA program and its logo.

The month of July has been designated as National Ice Cream Month and the third Sunday in July as National Ice Cream Day by the United States Congress and by presidential proclamation.

The fifth annual ICE CREAM FOR AMERICA Capitol Hill Ice Cream Party was held on June 18, 1987 in Washington, D. C. as the media kickoff. More than 10,000 ice cream lovers, including Senators and Congressmen and their families, Congressional staffs, IICA members, government officials, and national and local media attended the kickoff. They enjoyed 2,500 gallons of ice cream, 13,000 novelties, 180 gallons of Smucker's Toppings, and 8,000 A&W Rootbeer Floats.

THE LATEST SCOOP

W O R L D W I D E

FACTS & FIGURES ON ICE CREAM
& RELATED PRODUCTS

Published by

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FOREWORD

The ice cream industry has reached new dimensions with a wide variety of products appealing to both the young and the old and the calorie conscious. Ice cream products now represent one-third of the snack market and sales in the foodservice segment are increasing.

Record volumes of ice cream and related products were again reported in 1986 and this pattern is continuing in 1987.

"The Latest Scoop" reports the trends taking place in the industry and contains information on the production and consumption in the United States, Canada and 53 other countries. This edition also contains data on the various quality segments of ice cream and their share of the market. In addition, products included in the various categories are now footnoted.

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Additional copies to members of the International Ice Cream Association -- 1-24 copies $2.00 per copy; 25-99 copies $1.50 each; 100-499 copies $1.25 each; over 500 copies $1.00. Minimum order $10.00. Copies to nonmembers, $10.00 each. Includes postage and handling charges.

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How It All Started

Ice cream probably evolved from chilled wines and other iced beverages. In the fourth century before Christ, Alexander the Great was reputed to be fond of iced beverages.

And, from ancient records, it is learned that in 62 A.D., the Roman Emperor, Nero, sent fleets of slaves to the mountains of the Apennines to fetch snow and ice which were then flavored with nectar, fruit pulp and honey.

Marco Polo, the 13th century bard and adventurer, brought with him to Europe from the Far East, recipes for water ices...said to be used in Asia for thousands of years. These water ices became popular in Venice and throughout Italy.

When Catherine de Medici married Henry II and became Queen of France in 1533, she brought with her recipes for Italian sherbet. It is said that her son, Henry III, was addicted to these delicacies and consumed them daily.

In 1660 the Cafe Procope was founded in Paris by an Italian named Coltelli, and water ices and possibly cream ices were manufactured and dispensed.

This delicacy found its way to America and in 1700 Governor Bladen of Maryland was serving ice cream to his guests.

Dolley Madison created a sensation when she served ice cream as a dessert in the White House at the second inaugural ball in 1812.

The first hand-cranked freezer was invented by Nancy Johnson in 1846. She failed to patent it, however, and a similar type was patented by a Mr. Young in 1848.

The first commercial ice cream plant was established in Baltimore in 1851 by Jacob Fussell.

A year before the turn of the century, August Gaulin of Paris invented the homogenizer which is used to help develop the smooth texture of ice cream.

With the coming of mechanical refrigeration, the first batch freezer was invented by H. H. Miller of Canton, Ohio. About 1926, the first continuous freezer was commercially perfected by Clarence Vogt of Louisville, Kentucky.

The ice cream cone was first made and sold at the St. Louis World's Fair in 1904. It has remained a favorite to this date, with billions of cones consumed each year. Other products, such as ice cream on sticks, ice cream bars and other forms of ice cream; ice milk and sherbet, known in the industry as "novelties" had their beginning in the 1920s.

The basic mix for the manufacture of ice cream is largely cream and other milk ingredients, plus sweeteners.

The ingredients of the mix are carefully blended in proper proportions in a mixing tank. The mix may contain small amounts of functional ingredients, such as stabilizer, which prevents the formation of ice crystals in the ice cream after it is frozen.

The mix goes to a pasteurizer where it is heated and held at a predetermined temperature for a specified period of time. The most common type of pasteurization is the high-temperature-short-time method in which the mix is heated to 175 degrees F. and held for 25 seconds.

The hot mix then goes to the homogenizer where, under pressure of from 2,000 to 2,500 pounds per square inch, the milkfat globules are broken into still smaller particles to help make the ice cream smooth.

After homogenization, the hot mix is quickly cooled to a temperature of about 40 degrees F.

Next, freezing of the mix is accomplished by one of two methods: a "continuous freezer" which uses a steady flow of mix; or a "batch freezer" which makes a single quantity of ice cream at a time.

While the ice cream is being frozen, blades in the freezer, or "dashers" as they are commonly called, whip and aerate the products. Without this aeration, the finished product would be an inedible, solidly frozen mass of cream, milk, sugar and flavoring. In all states, this aeration, called "overrun," is controlled by requiring the finished ice cream shall weigh not less than 4.5 pounds per gallon and contain at least 1.6 pounds of total food solids.

With the use of the continuous freezer, ingredients such as fruits and nuts are added after the freezing by a mechanical flavor feeder. Liquid flavors are added to the mix prior to freezing.

The filling operation includes many activities such as filling large containers, half gallon, quart and pint packages, paper cups or molds for ice cream on a stick.

After the freezer and filling, ice cream goes to the "hardening room" where sub-zero temperatures further harden the ice cream. From the hardening room, it is loaded into refrigerated trucks for delivery to distributors or retailers.

Review

- The ice cream industry reached new heights in 1986...and this trend extends into 1987.

- *For the first six months of 1987*...ice cream continued its climb with a reported increase in volume of 2% over the corresponding period last year, while ice milk gained 4%.

- *For the year 1986*...record volumes were established for ice cream, ice milk, sherbet and water ices. Production of ice cream reached 923.6 million gallons, up 2.5%; ice milk volume totaled 314.7 million gallons an increase of 4.4%; sherbet output amounted to 49.7% million gallons, a gain of 3.1%; and the volume of water ices climbed 2.2% for a total of 50.9 million gallons. Production of all ice cream products reached an all-time high of 1.4 billion gallons and a record 23.5 quarts per capita.

- The industry employs 19,000 people and has an annual payroll of $384.7 million.

- The retail value of ice cream and related products is estimated to be over $9 billion.

- Raw material costs represented 52.9% of the ice cream processor's dollar and processing and packaging, 30.5%.

- Ice cream accounts for 65% of the total production, followed by ice milk 22%, water ices 3.6%, sherbet 3.5%, with the balance made up of mellorine-type products and other frozen dairy products.

- The highest per capita consumption of ice cream is in the New England area with 23.25 quarts, compared with 15.32 quarts for the country.

- The West North Central region reported the highest per capita consumption of ice cream and related products of 33.96 quarts, versus 23.49 quarts nationally.

- California continues as the leading producer of ice cream and related products with a total output of 155.5 million gallons.

- Only 4% of ice cream manufactured is soft serve, while 78% of ice milk is in this form.

- Sales at ice cream and frozen custard stands are forecast to increase 7% in 1987 for a total of $1.6 billion.

- Ice cream novelty sales represent about one-third of the total snack market.

- Superpremium and premium ice creams represent about 35% of the total dollar sales of ice cream.

- July was the highest producing month of ice cream and related products in 1986 accounting for 10.7% of the total, while November ranked the lowest with 6.2%.

Preliminary

Month	Ice Cream (Hard) 1987	% Change from 1986	Ice Milk (Hard & Soft) 1987	% Change from 1986
January	57,564,000	- 3.34	19,444,000	+ 2.45
February	65,954,000	+ 3.65	21,078,000	+ 8.10
March	76,461,000	+ 3.69	27,354,000	+ 6.10
April	78,331,000	+ 2.40	30,257,000	+ 4.67
May	82,250,000	- 2.10	32,039,000	- 1.85
June	93,510,000	+ 5.52	35,714,000	+ 5.56
6-Month Total	454,070,000	+ 1.80	165,886,000	+ 3.91

	1986	% Change from 1985
Total Ice Cream & Related Products	1,415,971,000 gals.	+ 4.04
Per Capita Production	23.49 qts.	+ 3.03
Ice Cream (Hard and Soft)	923,597,000 gals.	+ 2.46
Per Capita Production	15.32 qts.	+ 1.46
Ice Milk (Hard and Soft) 1/	314,673,000 gals.	+ 4.43
Per Capita Production	5.22 qts.	+ 3.37
Sherbet (Hard and Soft)	49,679,000 gals.	+ 3.06
Per Capita Production	0.82 qts.	+ 2.03
Water Ices (Hard) 2/	50,937,000 gals.	+ 2.20
Per Capita Production	0.85 qts.	+ 1.20
Mellorine (Hard and Soft) 3/	8,429,000 gals.	- 3.69
Per Capita Production	0.14 qts.	- 4.57
Other Frozen Dairy Products 4/	68,656,000 gals.	+33.53
Per Capita Production	1.14 qts.	+32.24

1/ Includes freezer-made milkshake.
2/ Also contains sorbet, frozen juice bars and gelatin pops.
3/ Also includes other vegetable fat products and tofu-based products.
4/ Includes frozen yogurt, soft yogurt mix, pudding pops and miscellaneous frozen dairy products.

United States is the largest consumer of ice cream and related products with a per capita production of 46.99 pints. Ice cream per capita was 30.65 pints.

New Zealand is the second largest user of ice cream and related products with a per capita production of 41.82 pints and a per capita production of ice cream of 37.95 pints.

Australia has the third highest per capita of ice cream products of 37.98 pints and a per capita production of ice cream of 27.49 pints.

Canada ranks in fourth place with a per capita production of 32.60 pints for all ice cream products and a per capita production of 26.80 pints of ice cream.

Sweden continues in fifth place with a reported per capita of 30.17 pints of ice cream and related products and 26.54 pints of ice cream.

- Selected Frozen Desserts -

ICE CREAM is a frozen food made from a mixture of dairy products, such as milk, cream and nonfat milk, combined with sugars, flavorings, fruits, nuts, etc. Ice cream which contains at least 1.4% egg yolks is called french ice cream or frozen custard. Ice cream and french ice cream contain a minimum of 10% milkfat and weigh not less than 4.5 pounds per gallon.

ICE MILK is a frozen dessert which is similar to ice cream except that it contains between 2% to 7% milkfat.

SHERBET, both fruit sherbet and those flavored with flavors other than fruit, contains between 1% to 2% milkfat and weighs not less than 6 pounds per gallon.

WATER ICES, both fruit ices and those flavored with flavors other than fruit, contain no dairy ingredients and weigh not less than 6 pounds per gallon.

MELLORINE is a frozen dessert similar to ice milk in which the milkfat is replaced, in whole or in part, with vegetable fat and the minimum fat content is 6%.

	Calories	Protein g.	Carbohydrate g.	Fat g.	Vitamin A I.U.	Calcium mg.	Phosphorus mg.	Riboflavin mg.
Vanilla Ice Cream (10% fat)	135	2.4	15.9	7.2	271	88	67	.164
% U.S. RDA 2/		5.3%			5.4%	8.8%	6.7%	9.6%
Vanilla Ice Cream (16% fat)	175	2.1	16.0	11.8	448	76	58	.141
% U.S. RDA 2/		4.6%			8.9%	7.6%	5.8%	8.3%
Vanilla Ice Milk (4% fat)	92	2.6	14.5	2.8	107	88	64	.173
% U.S. RDA 2/		5.7%			2.1%	8.8%	6.4%	10.1%
Orange Sherbet (2% fat)	135	1.1	29.4	1.9	93	52	37	.045
% U.S. RDA 2/		2.4%			1.8%	5.2%	3.7%	2.6%

1/ Values presented per 1/2 cup (approximately 4 fluid ounces). Source: Calculated from USDA Agricultural Handbook 8-1 (November 1976) data.

2/ United States Recommended Daily Allowance.

Year	All Employees 1/		Production Workers 1/		Wages 1/	Value of Product Shipments 2/
	Number	Payroll	Number	Manhours		
	Thousands	Million Dollars	Thousands	Millions	Million Dollars	Million Dollars
1947	46.7	119.3	29.3	52.8	66.1	802.0
1954	36.5	134.2	21.0	42.4	64.2	954.3
1958	34.8	153.9	18.7	37.7	72.4	1,137.7
1963	29.6	162.8	15.6	32.5	76.6	1,210.0
1967	24.6	156.4	13.8	27.2	77.2	1,273.6
1968	23.7	158.2	13.2	26.6	79.8	1,330.0
1969	22.7	159.2	12.6	25.4	80.6	1,334.8
1970	24.1	166.8	13.9	26.1	85.9	1,343.2
1971	22.6	173.5	12.8	25.1	87.7	1,389.0
1972	21.1	184.7	12.0	23.5	94.7	1,519.4
1973	21.3	195.9	12.1	24.1	100.0	1,639.5
1974	21.3	196.5	11.8	22.9	108.0	1,787.9
1975	20.2	208.5	11.1	22.0	116.4	2,012.9
1976	20.3	223.6	11.3	22.3	125.3	2,063.3
1977	19.1	247.0	11.4	22.7	130.1	2,229.4
1978	18.5	252.5	11.3	21.9	136.6	2,397.2
1979	19.9	277.4	12.3	24.3	151.9	2,733.2
1980	19.6	288.6	12.3	23.7	163.0	3,041.5
1981	20.1	325.6	12.0	23.0	167.1	3,322.1
1982	17.8	313.5	11.1	20.9	177.3	3,281.1
1983	17.7	349.7	9.5	19.7	174.0	3,414.5
1984	20.0	367.2	12.2	23.1	200.4	3,809.9
1985	18.9	384.7	11.7	21.5	199.8	3,881.8

1/ Data for plants with ice cream and other frozen desserts as the leading product group in value of shipments.

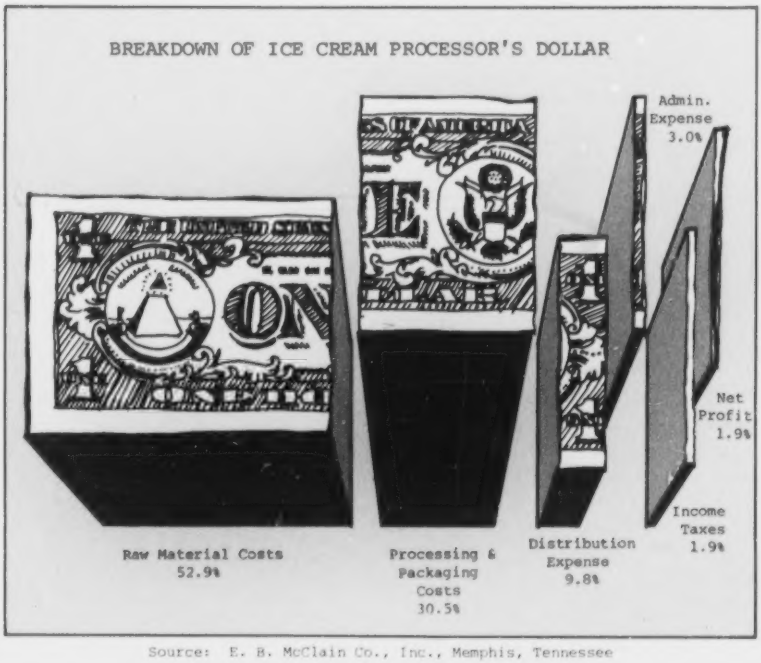
2/ Includes value of shipments of ice cream and other frozen desserts by plants classified in other industries, such as fluid milk.

Source: Bureau of the Census, U. S. Department of Commerce.

Year	Total Million Dollars	For Plants Million Dollars	Share of Total Percent	For Equipment Million Dollars	Share of Total Percent
1947	36.0	5.4	15.0	30.6	85.0
1954	25.7	4.2	16.3	21.5	83.7
1958	26.1	5.1	19.5	21.0	80.5
1963	31.9	8.1	25.4	23.8	74.6
1967	26.6	5.7	21.4	20.9	78.6
1968	22.1	2.8	12.7	19.3	87.3
1969	30.3	5.6	18.5	24.7	81.5
1970	43.7	15.8	36.2	27.9	63.8
1971	28.0	5.7	20.4	22.3	79.6
1972	35.8	7.5	20.9	29.3	79.1
1973	29.2	9.7	33.2	19.5	66.8
1974	27.8	6.2	22.3	21.6	77.7
1975	37.2	10.1	27.2	27.0	72.6
1976	43.2	11.9	27.5	31.3	72.5
1977	56.8	19.4	33.4	38.7	66.6
1978	56.4	12.6	22.3	43.8	77.7
1979	46.3	12.8	27.6	33.5	72.4
1980	46.8	11.1	23.7	35.7	76.3
1981	41.8	6.1	14.6	35.7	85.4
1982	79.9	16.3	20.4	63.6	79.6
1983	75.5	9.3	12.3	66.2	87.7
1984	84.0	17.3	20.6	66.7	79.4

Source: Bureau of the Census, U. S. Department of Commerce.

Year	Average Wages Production Workers $ per Hour	Average Retail Price of Ice Cream ¢ per ½ Gallon	Labor Required to Purchase Half Gallon of Ice Cream Minutes
1976	5.22	127.1	14.6
1977	5.68	135.2	14.3
1978	6.17	146.2	14.2
1979	6.70	163.3	14.6
1980	7.27	182.3	15.0
1981	7.99	201.6	15.1
1982	8.49	210.3	14.9
1983	8.83	215.8	14.7
1984	9.18	221.8	14.5
1985	9.52	229.9	14.5
1986	9.73	235.7	14.5
% Change 1976-1986	+ 86%	+ 85%	- 1%



Source: E. B. McClain Co., Inc., Memphis, Tennessee

YEAR	ALL PRODUCTS REPORTED		ICE CREAM		ICE MILK 2/		SHERBET		WATER ICES 3/		OTHER FROZEN DAIRY PRODUCTS 4/		MELLORINE-TYPE PRODUCTS 5/	
	Total 1/ 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts
1859	4		4											
1869	24		24											
1879	144	0.01	144	0.01										
1889	851	0.06	851	0.06										
1899	5,021	0.27	5,021	0.27										
1909	29,637	1.31	29,637	1.31										
1919	152,982	5.86	152,982	5.86										
1920	171,248	6.43	171,248	6.43										
1930	255,439	8.30	255,439	8.30										
1940	339,544	10.29	318,088	9.64	10,457	0.32	8,089	0.24			2,910	0.09		
1950	634,768	16.79	554,351	14.66	36,870	0.98	17,018	0.45	18,299	0.48	8,230	0.22		
1955	819,934	19.96	628,525	15.30	90,185	2.20	37,365	0.91	28,158	0.69	3,440	0.08	32,261	0.78
1960	969,004	21.54	699,605	15.55	145,177	3.23	40,734	0.91	33,361	0.74	4,913	0.11	45,214	1.00
1965	1,130,215	23.36	757,000	15.65	230,992	4.77	45,449	0.94	37,119	0.77	6,486	0.13	53,169	1.10
1970	1,193,144	23.42	761,732	14.95	286,663	5.63	48,887	0.96	37,265	0.73	6,719	0.13	51,878	1.02
1975	1,263,213	23.45	836,552	15.53	298,789	5.55	48,542	0.90	38,230	0.71	11,062	0.20	30,038	0.56
1980	1,225,223	21.58	829,798	14.61	293,384	5.17	45,187	0.80	33,386	0.59	10,278	0.18	13,190	0.23
1984	1,315,961	22.26	894,468	15.13	299,825	5.07	47,488	0.80	42,409	0.72	22,885	0.39	8,886	0.15
1985	1,360,974	22.80	901,449	15.10	301,312	5.05	48,206	0.81	49,842	0.83	51,413	0.86	8,752	0.15
1986	1,415,971	23.49	923,597	15.32	314,673	5.22	49,679	0.82	50,937	0.85	68,656	1.14	8,429	0.14

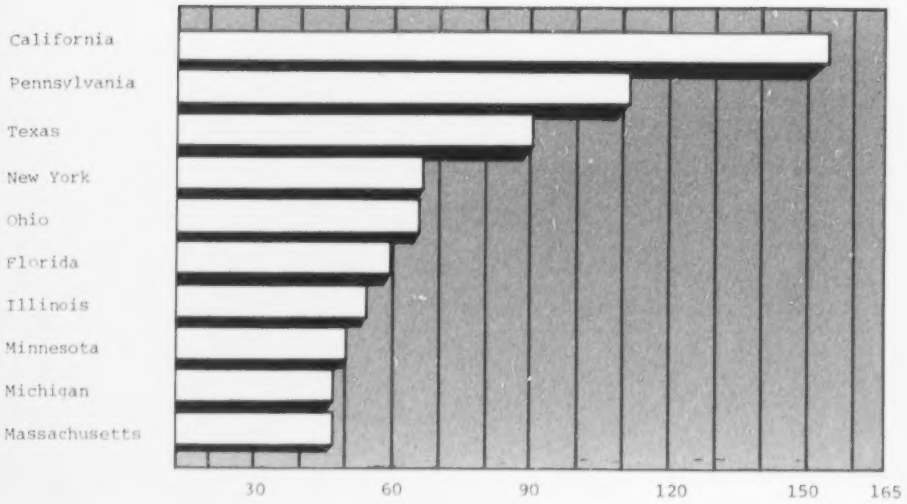
1/ Data from 1859 to 1919 indicate only the estimated trend of production.
2/ Includes freezer-made milkshake.
3/ Also contains sorbet, frozen juice bars and gelatin pops.
4/ Also includes other vegetable fat products and tofu-based products.
5/ Includes frozen yogurt, soft yogurt mix, pudding pops and miscellaneous frozen dairy products.

Prepared by the International Ice Cream Association from data published by the U. S. Department of Agriculture.

STATE & REGION	ICE CREAM	ICE MILK 1/	SHERBET	WATER ICES 2/	MELLORINE TYPE PRODUCTS 3/	OTHER FROZEN DAIRY PRODUCTS 4/	TOTAL FROZEN PRODUCTS
			(Thousand Gallons)				
Maine	1,055	5/	5/	5/			1,055
New Hampshire	5/	5/	5/				5/
Vermont	5/	5/	5/				5/
Massachusetts	45,186	5/	1,733	5/		5/	46,919
Rhode Island	5/	5/	5/	5/		5/	5/
Connecticut	5/	5/	5/	5/		5/	5/
New York	47,456	11,885	3,485	3,765	5/	5/	66,591
New Jersey	23,536	4,520	323	5/			28,379
Pennsylvania	88,413	16,117	3,490	2,619		1,302	111,941
Ohio	45,444	14,147	3,338	1,671		1,306	65,906
Indiana	28,347	8,845	2,098	2,083	5/	1,453	42,826
Illinois	31,504	20,583	1,578	439	168	5/	54,272
Michigan	33,520	11,803	1,808	5/	5/	5/	47,131
Wisconsin	23,061	4,510	936	2,541		148	31,196
Minnesota	36,906	9,475	1,908	5/	5/	5/	50,289
Iowa	24,126	8,594	2,131	1,585	5/	491	36,927
Missouri	20,631	7,928	1,546	5/	5/	5/	30,105
North Dakota	2,074	918	196	5/			3,188
South Dakota	5/	5/					5/
Nebraska	5/	3,204	5/	5/		5/	3,204
Kansas	7,171	4,759	438	150		5/	12,518
Maryland & D.C.	17,695	6,272	1,264	3,312	5/	5/	28,543
Virginia	13,319	6,340	232	5/		5/	19,891
West Virginia	2,998	1,822	195	5/		5/	5,015
North Carolina	31,377	6,785	1,180	2,403		5/	41,745
South Carolina	11,984	3,922	1,387	5/		5/	17,293
Georgia	9,768	10,387	788	5/		5/	20,943
Florida	37,180	18,600	1,875	1,700		5/	59,355
Kentucky	5/	5/	5/	5/	5/	5/	5/
Tennessee	21,075	6,023	909	5/	93	5/	28,100
Alabama	18,983	8,032	1,620	5/	5/	5/	28,635
Mississippi	3,109	2,406	215	5/			5,730
Arkansas	6,629	2,380	314		267		9,590
Louisiana	8,477	4,079	5/	5/		5/	12,556
Oklahoma	12,272	3,962	726	5/	64	5/	17,024
Texas	55,239	21,312	2,951	4,389	4,622	2,077	90,590
Montana	1,882	1,301	86	5/		5/	3,269
Idaho	5,063	2,066	300	5/			7,429
Wyoming	5/	5/	5/				5/
Colorado	10,335	6,125	314	478		178	17,430
New Mexico	5/	5/	5/	5/			5/
Arizona	6,711	5,134	638		5/	5/	12,483
Utah	9,447	2,424	715	5/			12,586
Nevada	5/	5/	5/				5/
Washington	18,557	7,497	1,459	5/	5/	5/	27,513
Oregon	8,429	4,441	316	5/	5/		13,186
California	106,560	31,572	4,717	3,489	287	8,839	155,464
Other States 6/	46,078	24,503	2,470	20,313	2,928	52,862	149,154
	923,597	314,673	49,679	50,937	8,429	68,656	1,415,971

1/ Includes freezer-made milkshake.
2/ Also contains sorbet, frozen juice bars and gelatin pops.
3/ Also includes other vegetable fat products and tofu-based products.
4/ Includes frozen yogurt, soft yogurt mix, pudding pops and miscellaneous frozen dairy products.
5/ State data not shown when less than 3 plants reported or individual operations might be disclosed -- included in "Other States" with Alaska and Hawaii.
6/ Includes varying states for each product.

Prepared by International Ice Cream Association from data published by U. S. Department of Agriculture.



State	Ice Cream	Ice Milk	Sherbet	Water Ices	Mellorine Type Products	Total 1/
			(Thousand Gallons)			
California	106,560	31,572	4,717	3,489	287	155,464
Pennsylvania	88,413	16,117	3,490	2,619		111,941
Texas	55,239	21,312	2,951	4,389	4,622	90,590
New York	47,456	11,885	3,485	3,765	2/	66,591
Ohio	45,444	14,147	3,338	1,671		65,906
Florida	37,180	18,600	1,875	1,700		59,355
Illinois	31,504	20,583	1,578	439	168	54,272
Minnesota	38,906	9,475	1,908	2/	2/	50,289
Michigan	33,520	11,803	1,808	2/	2/	47,131
Massachusetts	45,186	2/	1,733	2/		46,919
TOTAL-- 10 STATES	529,408	155,494	26,883	18,072	5,077	748,458
PERCENT OF U. S. TOTAL	57.3%	49.4%	54.1%	35.5%	60.2%	52.9%

1/ Includes small amounts of other frozen products in addition to those shown separately.

2/ State data not shown when less than 3 plants reported or individual operations might be disclosed.

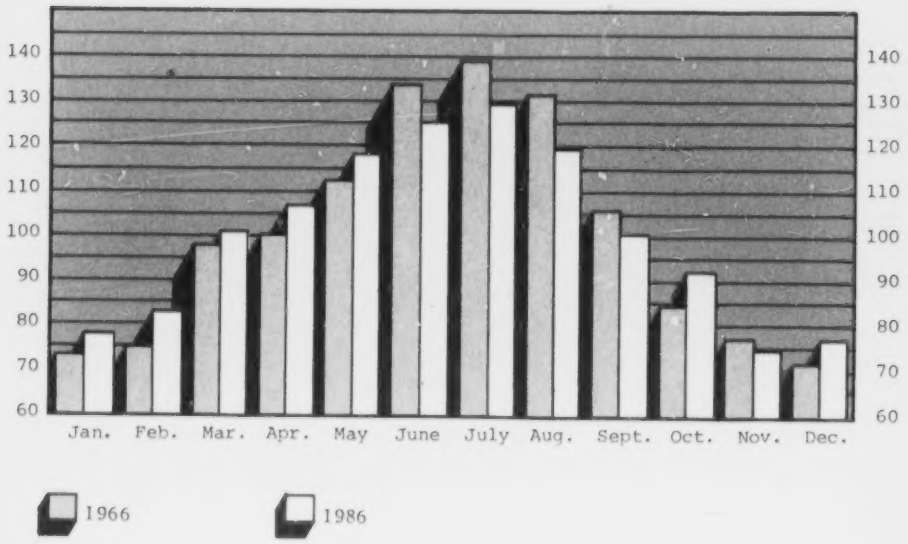
Prepared by the International Ice Cream Association from data published by the U. S. Department of Agriculture.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						(Thousand Gallons)							
						ALL FROZEN PRODUCTS 1/							
1984	79,220	95,696	113,801	111,151	127,065	140,799	138,497	133,368	109,517	100,490	87,470	78,887	1,315,961
1985	88,999	89,716	111,944	118,819	135,489	140,076	148,493	137,940	115,431	104,867	85,978	83,222	1,360,974
1986	90,546	97,037	118,853	125,534	138,860	147,641	151,992	141,252	118,475	108,767	87,866	89,148	1,415,971
						ICE CREAM							
1984	55,784	67,349	78,763	74,755	83,435	91,441	90,897	88,512	75,440	69,607	62,126	56,359	894,468
1985	61,977	60,814	74,369	76,066	86,254	90,227	95,945	90,040	77,097	70,511	59,541	58,608	901,449
1986	61,968	66,002	76,598	79,638	87,764	92,460	96,038	91,054	77,938	73,243	60,291	60,603	923,597
						ICE MILK							
1984	17,002	20,517	24,484	25,161	30,486	33,656	33,272	32,135	24,563	22,862	18,866	16,821	299,825
1985	17,245	17,892	23,981	27,797	31,869	31,653	34,849	32,273	25,958	23,518	17,918	16,359	301,312
1986	18,979	19,499	25,781	28,908	32,640	33,833	35,113	32,324	26,116	24,352	18,276	18,852	314,673
						SHERBET							
1984	2,818	3,020	4,042	4,215	4,650	5,720	5,261	4,822	3,780	3,386	2,999	2,775	47,488
1985	3,166	3,000	4,046	4,427	5,112	5,203	5,533	4,871	3,743	3,300	2,747	3,058	48,206
1986	3,120	3,208	3,938	4,449	5,198	5,657	6,080	4,993	3,859	3,313	2,703	3,161	49,679
						WATER ICES							
1984	1,963	2,684	3,826	4,184	5,189	6,215	5,339	4,688	3,158	2,105	1,698	1,360	42,409
1985	2,446	3,426	4,293	5,142	6,306	6,843	6,333	5,283	3,900	2,750	1,703	1,417	49,842
1986	2,590	3,538	4,714	5,596	6,225	7,465	7,342	5,143	3,040	2,149	1,506	1,629	50,937
						MELLORINE TYPE PRODUCTS							
1984	515	704	841	812	933	938	969	834	726	646	511	457	8,886
1985	579	619	814	841	887	878	881	876	735	720	468	454	8,752
1986	470	584	811	815	874	847	920	867	754	736	369	382	8,429

1/ Includes other frozen dairy products in addition to those shown separately.

Prepared by the International Ice Cream Association from data published by U. S. Department of Agriculture.

(Monthly production as a percent of annual average)



Month	1966	1986
January	72.8	76.7
February	74.5	82.2
March	98.3	100.7
April	99.6	106.4
May	111.9	117.7
June	133.9	125.1
July	139.3	128.8
August	131.8	119.7
September	105.6	100.4
October	84.4	92.2
November	76.6	74.5
December	71.4	75.6

REGION	ICE CREAM	ICE MILK 1/	SHERBET	WATER ICES 2/	MELLORINE TYPE PRODUCTS 3/	OTHER FROZEN DAIRY PRODUCTS 4/	TOTAL FROZEN PRODUCTS
			(Thousand Gallons)				
New England	74,045	14,277	3,059	2,193		998	94,572
Mid Atlantic	159,405	32,522	7,298	7,198	315	6,017	212,755
E. N. Central	161,876	59,888	9,758	6,736	182	4,021	242,461
W. N. Central	98,567	35,625	6,407	6,201	739	1,692	149,231
South Atlantic	124,321	54,128	6,921	12,530	163	43,401	241,464
South Central	130,696	53,108	7,291	8,847	6,448	3,015	209,405
Mountain	39,033	19,849	2,250	2,584	44	461	64,221
Pacific	133,546	43,510	6,492	4,581	368	9,051	197,548
UNITED STATES 5/	923,597	314,673	49,679	50,937	8,429	68,656	1,415,971

1/ Includes freezer-made milkshake.
2/ Also contains sorbet, frozen juice bars and gelatin pops.
3/ Also includes other vegetable fat products and tofu-based products.
4/ Includes frozen yogurt, soft yogurt mix, pudding pops and miscellaneous frozen dairy products.
5/ Includes Alaska and Hawaii.

Prepared by International Ice Cream Association from data released by U. S. Department of Agriculture.

Product & Year	New England	Mid Atlantic	E. N. Central	W. N. Central	South Atlantic	South Central	Mountain	Pacific	United States
				(Quarts)					
ICE CREAM									
1960	18.44	19.71	17.94	17.11	13.23	9.52	13.21	14.25	15.55
1965	20.06	18.74	18.19	18.00	13.40	9.57	12.88	14.89	15.65
1970	20.82	17.96	16.86	17.94	11.36	10.18	11.90	14.62	14.96
1975	24.72	16.27	17.40	19.23	12.33	11.71	10.96	15.77	15.53
1980	21.83	16.19	16.10	19.15	11.48	10.78	11.93	15.18	14.61
1984	23.06	16.47	15.50	21.63	11.69	12.19	11.61	16.27	15.13
1985	22.88	16.83	15.59	21.36	12.03	12.11	11.61	15.57	15.10
1986	23.25	17.10	15.51	22.43	12.15	12.43	11.99	15.65	15.32
ICE MILK									
1960	1.50	0.86	2.61	5.42	3.97	3.61	4.92	5.48	3.23
1965	2.10	2.01	4.50	6.59	6.52	5.54	5.47	6.21	4.77
1970	3.65	3.32	5.89	8.24	6.66	5.50	6.56	6.55	5.63
1975	5.34	3.40	6.49	7.70	5.86	5.14	5.18	5.95	5.55
1980	4.72	3.11	6.14	7.34	5.49	4.39	6.23	5.48	5.17
1984	4.20	3.16	5.67	7.99	5.57	4.61	5.44	5.12	5.07
1985	4.40	2.93	5.21	8.57	5.05	5.12	5.83	5.23	5.05
1986	4.48	3.49	5.74	8.11	5.29	5.05	6.10	5.10	5.22
TOTAL FROZEN PRODUCTS 1/									
1960	21.76	22.34	22.91	24.98	18.97	18.19	20.01	23.96	21.54
1965	24.38	22.64	24.81	27.11	21.78	20.66	20.56	26.08	23.36
1970	26.55	23.06	25.06	28.46	19.48	20.48	20.06	25.64	23.43
1975	31.59	21.19	25.92	28.38	19.95	20.35	17.26	24.56	23.45
1980	28.41	20.83	24.13	29.24	18.53	17.38	19.29	22.44	21.58
1984	28.92	21.76	23.19	33.26	18.74	18.89	18.49	23.53	22.26
1985	29.13	22.02	22.74	33.28	18.99	19.73	19.31	23.18	22.38
1986	29.70	22.83	23.24	33.96	23.61	19.91	19.73	23.14	23.49

1/ Includes ice cream, ice milk, sherbet, mellorine-type products, water ices and other frozen dairy products.

Prepared by the International Ice Cream Association from production data released by the U. S. Department of Agriculture and population estimates from Bureau of the Census, U. S. Department of Commerce.

STATE & REGION	ICE CREAM MIX	ICE MILK MIX	SHERBET MIX	MELLORINE TYPE MIX	TOTAL MIX FOR FROZEN PRODUCTS
	(Thousand Gallons)				
Maine	488				488
New Hampshire					1/
Vermont					1/
Massachusetts	23,587		1,148		24,735
Rhode Island					1/
Connecticut					1/
New York	26,209	3,968	2,431		32,608
New Jersey	16,023				16,023
Pennsylvania	47,121	7,673	2,391		57,185
Ohio	24,884	7,508	2,521		34,913
Indiana	13,448	7,708	1,374		22,530
Illinois	18,117	13,071	[illegible]		32,190
Michigan	16,352	7,295	1,060		24,717
Wisconsin	12,029	2,463	598		15,090
Minnesota	19,363				19,363
Iowa	12,003	5,808	1,583		19,394
Missouri	7,930	5,071	1,002		14,003
North Dakota	875	602	133		1,610
South Dakota					1/
Nebraska		2,105			2,105
Kansas	3,568	3,734	258		7,560
Maryland & D. C.	7,433		1,080		8,513
Virginia	6,915	7,355	144		14,414
West Virginia	1,297	712	73		2,082
North Carolina	16,543	4,275	764		21,582
South Carolina	6,207	2,143	905		9,255
Georgia	4,582		473		5,055
Florida	18,520	11,500	1,200		31,220
Kentucky		2,799			2,799
Tennessee	10,468	2,710	640		13,818
Alabama	10,211	4,528	1,107		15,846
Mississippi	1,620	1,515	133		3,268
Arkansas	3,517	1,670	181	132	5,500
Louisiana		2,272			2,272
Oklahoma	6,076	1,994			8,070
Texas	29,747	13,688	1,804	2,518	47,757
Montana	1,141	673	57		1,871
Idaho	2,185	1,810	159		4,154
Wyoming					1/
Colorado	5,298	4,103	219		9,620
New Mexico					1/
Arizona		3,320			3,320
Utah	4,783	1,830	437		7,050
Nevada					1/
Washington	9,332	4,121	1,093		14,546
Oregon	4,020	2,929	189		7,138
California	54,482	20,077	3,334	182	78,075
Other States 2/	31,011	36,264	3,697	1,979	72,951
	477,405	199,294	33,180	4,811	714,690

1/ State data not shown when less than 3 plants reported or individual operations might be disclosed, included in "Other States" with Alaska and Hawaii.

2/ Includes varying states for each product.

Prepared by International Ice Cream Association from data published by U. S. Department of Agriculture.

NUMBER OF PLANTS PRODUCING ICE CREAM AND RELATED PRODUCTS
1960-1986

Year	Ice Cream Including Counter Freezers	Ice Cream Excluding Counter Freezers	Ice Milk	Sherbet	Water Ices	Mellorine Type Products
1960	16,591	-	23,843	5,067	2,376	1,242
1961	15,872	-	27,607	4,636	2,398	1,221
1962	14,541	-	30,919	3,764	2,353	1,364
1963	13,915	2,476	33,229	3,625	2,650	1,253
1964	13,106	-	34,485	3,395	2,691	1,313
1965	12,584	-	35,181	3,452	2,852	1,280
1966	12,063	-	36,158	3,580	2,682	1,308
1967	11,452	-	37,312	3,191	2,773	1,363
1968	11,228	1,873	39,474	3,108	2,854	1,792
1969	1/	1,739	1,160 2/	1,176 2/	1/	199 2/
1970		1,628	1,088	1,122 2/	377	203
1971		1,520	1,008	1,065	335	177
1972		1,451	984	1,022	363	180
1973		1,330	902	976	321	154
1974		1,239	824	904	299	146
1975		1,167	746	850	281	124
1976		1,124	718	812	281	119
1977		1,095	702	782	273	110
1978		1,062	670	744	263	101
1979		990	604	690	234	89
1980		949	576	654	220	76
1981		895	548	614	212	74
1982		884	524	608	212	67
1983		862	495	594	201	71
1984		853	477	570	199	57
1985		865	455	562	201	60
1986		845	436	542	220	54

1/ Not available
2/ After 1968, number of plants producing hard product. Number of counter freezers not available.

Prepared by the International Ice Cream Association from data published by the U. S. Department of Agriculture.

YEAR	ICE CREAM		ICE MILK		SHERBET		MELLORINE TYPE PRODUCTS		TOTAL FOUR PRODUCTS 2/	
	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts
1955	612,812	14.92	52,217	1.27	34,675	0.84	29,874	0.72	729,578	17.75
1960	678,383	15.08	80,073	1.78	37,931	0.84	42,603	0.95	838,990	18.65
1965	741,024	15.32	126,146	2.60	44,954	0.93	50,143	1.04	962,267	19.89
1970	736,741	14.47	134,240	2.64	47,643	0.94	40,775	0.80	959,399	18.85
1975	803,494	14.92	116,609	2.17	45,996	0.85	23,724	0.44	989,823	18.38
1980	801,876	14.12	83,584	1.47	43,745	0.77	9,927	0.17	939,132	16.53
1984	855,882	14.48	61,569	1.04	44,666	0.75	7,095	0.12	969,212	16.39
1985	861,766	14.44	61,985	1.04	45,934	0.77	7,133	0.12	976,818	16.37
1986	886,702	14.71	67,733	1.12	47,231	0.78	7,559	0.13	1,009,225	16.74

1/ Breakdown between hard frozen and soft serve production not available prior to 1955.

2/ Includes ice cream, ice milk, sherbet and mellorine type products.

Prepared by the International Ice Cream Association from data released by the U. S. Department of Agriculture.

REGION	ICE CREAM	ICE MILK	SHERBET	MELLORINE TYPE PRODUCTS	TOTAL FOUR PRODUCTS 1/
			(Thousand Gallons)		
New England	71,848	4,843	3,000		79,691
Mid Atlantic	138,542	6,115	6,998	315	151,970
E. N. Central	157,026	9,011	8,990	8	175,035
W. N. Central	97,814	10,669	6,072	671	115,226
South Atlantic	119,719	12,280	6,475	163	138,637
South Central	128,420	13,646	7,145	5,823	155,034
Mountain	38,435	2,178	2,091	44	42,748
Pacific	132,819	8,879	6,257	365	148,320
UNITED STATES 2/	886,702	67,733	47,231	7,559	1,009,225

1/ Includes ice cream, ice milk, sherbet and mellorine type products.

2/ Includes Alaska and Hawaii.

Prepared by the International Ice Cream Association from data released by U. S. Department of Agriculture.

Product & Year	New England	Mid Atlantic	E. N. Central	W. N. Central	South Atlantic	South Central	Mountain	Pacific	United States
				(Quarts)					
ICE CREAM									
1960	18.04	17.97	17.65	17.08	12.94	9.47	13.16	14.22	15.08
1965	19.95	17.45	17.97	17.96	13.27	9.50	12.83	14.87	15.32
1970	19.81	16.43	16.63	17.82	11.17	9.96	11.81	14.41	14.47
1975	24.45	14.52	16.86	17.94	12.08	11.48	10.92	15.69	14.92
1980	21.03	14.42	15.77	19.04	11.20	10.57	11.82	15.14	14.12
1984	21.92	14.39	14.76	21.47	11.17	12.13	11.42	16.15	14.48
1985	22.19	14.64	14.98	21.18	11.40	11.91	11.43	15.45	14.44
1986	22.56	14.86	15.05	22.26	11.70	12.21	11.81	15.56	14.71
ICE MILK									
1960	0.50	0.33	0.97	2.72	2.81	2.25	2.15	3.50	1.78
1965	0.66	0.96	1.88	3.26	4.73	3.75	2.20	2.89	2.60
1970	0.99	1.51	2.24	3.95	4.16	3.35	1.96	2.39	2.64
1975	2.34	1.46	1.89	3.13	2.58	2.59	1.74	1.91	2.17
1980	1.33	0.94	1.15	2.29	1.82	1.38	1.56	1.85	1.47
1984	1.29	0.58	0.87	2.09	1.22	1.10	0.67	1.02	1.04
1985	1.28	0.53	0.82	1.99	1.18	1.18	0.67	1.12	1.04
1986	1.52	0.66	0.86	2.43	1.20	1.30	0.67	1.04	1.12
SHERBET									
1960	0.95	0.58	0.97	0.79	0.79	0.76	0.90	1.21	0.84
1965	1.20	0.72	1.02	0.83	0.88	0.89	0.89	1.18	0.93
1970	1.22	0.69	1.07	0.90	0.65	0.87	0.89	1.17	0.94
1975	1.04	0.61	0.97	0.99	0.79	0.79	0.70	1.05	0.85
1980	1.01	0.65	0.80	1.09	0.68	0.68	0.70	0.85	0.77
1984	1.09	0.65	0.77	1.22	0.64	0.66	0.60	0.80	0.75
1985	0.99	0.76	0.77	1.15	0.66	0.70	0.63	0.78	0.77
1986	0.94	0.75	0.86	1.38	0.63	0.68	0.64	0.73	0.78
MELLORINE									
1960	-	-	0.31	1.01	0.03	3.24	0.36	2.25	0.95
1965	-	-	0.20	0.78	0.02	3.49	0.74	2.85	1.04
1970	-	-	0.16	0.41	-	2.51	0.43	2.22	0.80
1975	-	-	0.05	0.15	-	1.47	0.22	1.06	0.44
1980	-	-	0.01	0.29	-	0.58	0.10	0.32	0.17
1984	-	0.04	-	0.17	-	0.46	0.05	0.10	0.12
1985	-	0.08	-	0.14	-	0.45	0.03	0.09	0.12
1986	-	0.21	-	0.15	0.02	0.55	0.01	0.04	0.13

Prepared by the International Ice Cream Association from data released by the U. S. Department of Agriculture and population estimates from Bureau of the Census, U. S. Department of Commerce.

PERCENTAGE OF HARD FROZEN PRODUCTION SOLD AS ICE CREAM, ICE MILK, SHERBET AND MELLORINE BY REGIONS - 1960-1986

Product & Year	New England	Mid Atlantic	E. N. Central	W. N. Central	South Atlantic	South Central	Mountain	Pacific	United States
				(Percent)					
ICE CREAM									
1960	93	95	89	79	78	60	79	67	81
1965	92	91	85	79	70	54	77	68	77
1970	90	88	83	77	70	60	78	71	77
1975	88	87	85	81	78	70	80	80	81
1980	90	90	89	84	82	80	83	83	85
1984	90	92	90	86	86	84	90	89	88
1985	91	92	90	87	86	84	90	89	88
1986	90	91	90	85	86	83	90	90	88
ICE MILK									
1960	2	2	5	12	17	14	13	16	10
1965	3	5	9	14	25	21	13	13	13
1970	4	8	11	17	26	20	13	12	14
1975	8	9	10	14	17	16	13	10	12
1980	6	6	6	10	13	10	11	10	9
1984	5	4	5	8	9	8	5	6	6
1985	5	3	5	8	9	8	5	6	6
1986	6	4	5	9	9	9	6	6	7
SHERBET									
1960	5	3	5	4	5	5	6	6	4
1965	5	4	5	4	5	5	6	6	5
1970	6	4	5	4	4	5	6	6	5
1975	4	4	5	4	5	5	5	5	5
1980	4	4	5	5	5	5	5	5	5
1984	5	4	5	5	5	5	5	4	5
1985	4	5	5	4	5	5	5	4	5
1986	4	5	5	5	5	5	4	4	4
MELLORINE									
1960	-	-	1	5	-	21	2	11	5
1965	-	-	1	3	-	20	5	13	5
1970	-	-	1	2	-	15	3	11	4
1975	-	-	-	1	-	9	2	5	2
1980	-	-	-	1	-	5	-	2	1
1984	-	-	-	1	-	3	-	1	1
1985	-	-	-	1	-	3	-	1	1
1986	-	-	-	1	-	3	-	-	1

Prepared by International Ice Cream Association from data released by the U. S. Department of Agriculture.

SOFT SERVE PRODUCTION - TOTAL AND PER CAPITA
ICE CREAM AND RELATED PRODUCTS
1955-1986 1/

YEAR	ICE CREAM		ICE MILK		SHERBET		MELLORINE TYPE PRODUCTS		TOTAL FOUR PRODUCTS 2/	
	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts	Total 1,000 Gallons	Per Capita Quarts
1955	15,713	0.38	37,968	0.93	2,690	0.07	2,387	0.06	58,758	1.44
1960	21,222	0.47	65,104	1.45	2,803	0.06	2,611	0.06	91,740	2.04
1965	15,976	0.33	104,846	2.17	495	0.01	3,026	0.06	124,343	2.57
1970	24,991	0.49	152,423	2.99	1,244	0.02	11,103	0.22	189,761	3.72
1975	33,058	0.61	182,180	3.38	2,546	0.05	6,314	0.12	224,098	4.16
1980	27,922	0.49	209,800	3.70	1,442	0.03	3,263	0.06	242,427	4.28
1984	38,586	0.65	238,256	4.03	2,822	0.05	1,791	0.03	281,455	4.76
1985	39,683	0.66	239,327	4.01	2,272	0.04	1,619	0.03	282,901	4.74
1986	36,895	0.61	246,940	4.10	2,448	0.04	870	0.01	287,153	4.76

1/ Breakdown between hard frozen and soft serve production not available prior to 1955.

2/ Includes ice cream, ice milk, sherbet and mellorine type products.

Prepared by the International Ice Cream Association from data released by the U. S. Department of Agriculture.

HARD AND SOFT SERVE PRODUCTION OF ICE CREAM AND RELATED PRODUCTS BY REGIONS — 1981

REGION	ICE CREAM	ICE MILK	SHERBET	MELLORINE TYPE PRODUCTS	TOTAL FOUR PRODUCTS 1/
			(Thousand Gallons)		
New England	2,197	9,434	59		11,690
Mid Atlantic	20,863	26,407	300		47,570
E. N. Central	4,850	50,877	768	174	56,669
W. N. Central	753	24,956	335	68	26,112
South Atlantic	4,602	41,848	446		46,896
South Central	2,276	39,462	146	625	42,509
Mountain	598	17,671	159		18,428
Pacific	727	34,631	235	3	35,596
UNITED STATES 2/	36,895	246,940	2,448	870	287,153

1/ Includes ice cream, ice milk, sherbet and mellorine type products.

2/ Includes Alaska and Hawaii.

Prepared by the International Ice Cream Association from data released by the U. S. Department of Agriculture.

Product & Year	New England	Mid Atlantic	E. N. Central	W. N. Central	South Atlantic	South Central	Mountain	Pacific	United States
				(Quarts per Capita)					
ICE CREAM									
1960	0.40	1.74	0.29	0.03	0.29	0.05	0.05	0.03	0.47
1965	0.11	1.29	0.22	0.04	0.13	0.07	0.05	0.02	0.33
1970	1.01	1.53	0.23	0.12	0.19	0.22	0.09	0.21	0.49
1975	0.27	1.75	0.54	1.29	0.25	0.23	0.04	0.08	0.61
1980	0.80	1.77	0.33	0.11	0.28	0.21	0.11	0.04	0.49
1984	1.14	2.08	0.74	0.16	0.52	0.06	0.19	0.12	0.65
1985	0.69	2.19	0.61	0.18	0.63	0.20	0.18	0.12	0.66
1986	0.69	2.24	0.46	0.17	0.45	0.22	0.18	0.09	0.61
ICE MILK									
1960	1.00	0.53	1.64	2.70	1.16	1.36	2.77	1.98	1.45
1965	1.44	1.05	2.62	3.33	1.79	1.79	3.27	3.32	2.17
1970	2.66	1.81	3.65	4.29	2.50	2.15	4.60	4.16	2.99
1975	3.00	1.94	4.60	4.57	3.28	2.55	3.44	4.04	3.38
1980	3.39	2.17	4.99	5.05	3.67	3.01	4.67	3.63	3.70
1984	2.91	2.58	4.80	5.40	4.35	3.51	4.77	4.10	4.03
1985	3.12	2.40	4.39	6.58	3.87	3.94	5.16	4.11	4.01
1986	2.96	2.83	4.88	5.68	4.09	3.75	5.43	4.06	4.10
ICE CREAM				(Percent)					
1960	29	76	13	1	20	3	2	2	23
1965	7	55	8	1	7	3	2	1	13
1970	27	46	6	3	7	7	2	5	13
1975	8	47	10	21	7	7	1	2	15
1980	19	45	6	2	7	6	2	1	11
1984	26	44	13	3	11	2	4	3	14
1985	18	47	12	3	14	5	3	3	14
1986	19	44	9	3	10	5	3	2	13
ICE MILK									
1960	71	23	75	99	80	77	98	98	71
1965	93	44	92	99	93	79	98	99	84
1970	72	54	86	92	93	67	98	94	80
1975	92	52	87	76	91	76	99	96	81
1980	81	55	91	94	91	90	97	99	87
1984	72	55	84	96	89	96	94	96	85
1985	81	52	96	96	85	93	95	96	85
1986	81	56	90	96	89	93	96	97	86

Prepared by the International Ice Cream Association from data released by the U. S. Department of Agriculture.

POTPOURRI

- *By accepted definition...*a novelty is an individually packaged, single serving of a frozen dessert or snack. Novelties are available in a wide variety of shapes, sizes and flavors. Some contain dairy ingredients, some do not. Some are on a stick, others contain cookies, candies or nuts.

- *Novelties are not just for kids anymore...*currently about 50% are consumed by adults, with many of the new premium novelty items geared specifically to the adult consumer, such as bite-size novelties, fruit bars, juice bars, gourmet bars, and for the calorie conscious, a new entry into the market, frozen desserts on a stick sweetened with aspartame.

- Nearly 70% of all novelties are presented on a stick and almost half of these are the quiescently frozen type...which means they are agitated or stirred while they are being frozen...such as an ice pop or juice bar. The remaining half of this type of product includes ice cream, ice milk and dairy-based bars.

- Ice cream sandwiches account for about 10% of the novelty market. This includes the traditional rectangular ice cream sandwich and the relatively new ice cream cookie sandwich.

- Ice cream bars and fruit and juice bars have posted the largest gain in the past three years.

- Ice pops still represent the largest segment of the novelty market.

- Children under six have the highest consumption level of novelties.

- Approximately two-thirds of all novelty purchases for at-home consumption are made at the supermarket. Convenience stores/ neighborhood groceries are an important secondary source.

- Ice cream novelty sales represent about one-third of the total snack market.

- After several years of phenomenal growth, the novelty market is expected to reach a record $2 billion in sales in 1987.

- Five years ago, the entire U. S. ice cream industry spent about $14 million on advertising...virtually all of which was concentrated in June, July and August. For the year 1987, it is estimated the industry will spend $120 million.

Source: IICA estimates.

There are no fixed standards or single definitions to determine the quality of ice cream. The preference of consumers vary and the degree of quality will ultimately be the consumer's perception of the product. Milkfat, total solids, overrun (the density of ice cream), flavoring, promotion and packaging are all factors influencing consumers' preferences.

It is generally conceded that there are four distinct ice cream quality segments of packaged ice cream -- economy, regular, premium and superpremium. The market share for each ice cream quality segment in 1986 is estimated to be

	$ Sales
Superpremium	7%
Premium	28%
Regular	51%
Economy	14%

Round or cylindrical containers have become synonymous with superpremium ice cream. Virtually all superpremium ice cream is marketed in round containers. A limited amount of premium is in round packaging as well. Superpremium is sold almost exclusively in pints and quarts. Most premium ice cream is sold in rectangular containers with the largest quantity in half gallon containers.

Total ice cream and related product retail sales in 1986 were estimated to be over $9 billion.

$4.6 billion is attributable to supermarket sales of packaged ice cream, frozen novelties and ice cream and related products.

$4.5 billion is attributable to foodservice sales of the same products (includes ice cream shops, restaurants, schools, military bases, hospitals, etc.).

Source: IICA estimates.

In 1987 foodservice sales are projected to reach $197.9 billion, up 6.4% over 1986. Sales of ice cream and frozen custard stands are forecast to increase 7.2%, for a total of $1.6 billion.

	Estimated Sales 1985 ($000)	Projected Sales 1986 ($000)	Projected Sales 1987 ($000)	% Change 1986/1987
Restaurants, Lunchrooms	$ 58,444,122	$ 62,221,912	$ 66,141,892	+ 6.3
Limited Menu Restaurants (Fast Food)	47,190,521	50,474,707	54,249,571	+ 7.5
Commercial Cafeterias	3,286,108	3,456,756	3,664,161	+ 6.0
Social Caterers	1,301,600	1,390,109	1,474,906	+ 6.1
Ice Cream & Frozen Custard Stands	1,375,857	1,477,670	1,584,062	+ 7.2
TOTAL EATING PLACES	$111,598,208	$119,021,154	$127,114,592	+ 6.8

Source: National Restaurant Association.

Products	Sales Volume ($ Mil.)	Gross Profit ($ Mil.)	% Margin Average Retail Gross Profits	Assortment/ Varieties at Warehouse
Ice Cream	$ 2,283.61	$ 698.78	30.6	107
Fluid Milk Products	6,433.69	1,408.98	21.9	24
Yogurt	1,233.65	293.61	23.8	103
Cottage Cheese	705.28	150.16	21.3	32
Cheese	3,938.36	952.50	24.2	311
Butter	1,363.99	342.36	25.1	15
Margarine	1,268.17	325.15	25.6	57
Eggs	2,214.50	356.53	16.1	6
Froz. Juice & Drinks	1,669.17	377.42	22.6	33
Refrig. Juice & Drinks	1,794.51	398.70	22.2	23
Carbonated Soft Drinks	7,429.77	2,078.09	28.0	107
Bakery Foods	7,585.89	1,555.11	20.5	78
Cookies & Crackers	4,609.27	1,107.98	24.0	108
Desserts & Toppings	582.65	142.11	24.4	165
Canned Fruit	1,128.57	266.68	23.6	196
Candy & Gum	2,610.88	824.04	31.6	642
Snacks	3,271.88	956.59	29.2	66

Source: Progressive Grocer, 1987 Supermarket Sales Manual.

	1983 ($000)	1984 ($000)	1985 ($000)	1986 ($000)
Ice Cream	$2,729,000	$2,764,000	$2,825,000	$2,937,000
Ice Milk	631,000	641,000	653,000	692,000
Sherbet	120,000	119,000	122,000	128,000
Water Ices	116,000	136,000	162,000	168,000

Source: IICA estimates.

(Hard Frozen)

MOST POPULAR FLAVORS		MOST POPULAR CATEGORIES	
1. Vanilla	31.02%	1. Vanilla	32.23%
2. Chocolate	8.81	2. Candy/Confection	9.01
3. Neapolitan	6.19	3. Chocolate	8.81
4. Vanilla Fudge	4.16	4. Neapolitan	6.19
5. Cookies 'n Cream	3.89	5. Nut	6.17
6. Butter Pecan	3.83	6. Variegated	5.39
7. Chocolate Chip	3.60	7. Fruit	5.28
8. Strawberry	3.53	8. Chocolate & Nuts	4.64
9. Rocky Road	1.31	9. Chocolate/Vanilla	0.45
10. Tin Roof Sundae	1.26	10. Coffee	0.41
Cherry	1.26	Other	21.42
12. French Vanilla	1.21		100.00%
13. Praline Pecan	0.91		
Heavenly Hash	0.91		
15. Chocolate Almond	0.85		
Other	27.26		
	100.00%		

(Hard Frozen)

Size	Paper	Plastic	All Containers
Pints	6.99%	1.71%	6.59%
Quarts	2.05	7.39	2.35
Half Gallons	68.46	21.25	64.89
Bulk	16.73	9.78	16.20
Other 1/	5.77	59.87	9.97
	100.00%	100.00%	100.00%

Size	Round	Rectangular
Pints	11.08%	1.76%
Quarts	4.26	0.18
Half Gallons	47.55	85.85
Bulk	25.99	3.95
Other 1/	11.23	8.26
	100.00%	100.00%

Paper	92.43%
Plastic	7.57
	100.00%

1/ Includes some gallons and larger units.

Source: Survey conducted by International Ice Cream Association, based on 1984 volume.

HIGHLIGHTS—CANADA

Preliminary

	1987	1986	% Change
		(Liters)	
January	19,818,000	18,503,000	+ 7.11
February	21,506,000	19,306,000	+11.40
March	25,524,000	23,555,000	+ 8.36
April	25,340,000	29,729,000	-14.76
May	28,787,000	33,154,000	-13.17
Five Month Total	120,975,000	124,247,000	- 2.63

All products experienced gains in production in 1986 and record volumes were established for ice cream, freezer-made milkshake, ice milk and water ices.

Ice cream, which accounts for 82% of total production, amounted to 316 million liters, an increase of 2%. Freezer-made milkshake rose 7% for a total volume of 31 million liters. Ice milk, with a volume of 17.6 million liters, was up 6.6%. Water ices climbed 9% for a total production of 17.3 million liters. Sherbet, with a volume of 2.6 million liters, was up 1%. The production of all ice cream products totaled 384.4 million liters, a gain of 3%. Total per capita amounted to 15.43 liters.

Quebec experienced the greatest gain in the production of ice cream with an increase of 5%, followed by Alberta, up 4%. Manitoba was down 9%. Alberta had the largest per capita production of ice cream of 16.6 liters.

July was the largest producing month for ice cream with 11.78% of the total. while January ranked the lowest with 5.85%.

	Production 1986 1/ (Liters) 2/	% Change from 1985	Per Capita 1986 (Liters)	% Change from 1985
Ice Cream - Hard	298,886,000	+ 2.12	12.00	+ 1.18
Ice Cream - Soft	17,196,000	- 1.96	0.69	- 2.82
Total Ice Cream	316,082,000	+ 1.89	12.69	+ 0.95
Freezer-made Milkshake 3/	30,905,000	+ 7.05	1.24	+ 6.06
Ice Milk	17,564,000	+ 6.57	0.71	+ 5.58
Water Ices	17,279,000	+ 8.77	0.69	+ 7.76
Sherbet	2,582,000	+ 1.01	0.10	+ 0.04
TOTAL ALL PRODUCTS	384,412,000	+ 2.78	15.43	+ 1.83

1/ Excludes production in Newfoundland and Prince Edward Island.
2/ One U. S. quart equivalent to .946 liter.
3/ Freezer-made milkshake derived by applying 40% overrun to milkshake mix.

Prepared by the International Ice Cream Association from data released by Statistics Canada.

Province	Year	Production			Percent	
		Hard	Soft	Total	Hard	Soft
		(Thousand Liters) 1/			%	
Alberta	1984	33,113	3,102	36,215	91	9
	1985	34,813	3,206	38,019	92	8
	1986	36,243	3,397	39,640	91	9
British Columbia	1984	26,857	3,673	30,530	88	12
	1985	27,769	3,904	31,673	88	12
	1986	28,434	3,839	32,273	88	12
Manitoba	1984	17,266	2,011	19,277	90	10
	1985	16,707	1,849	18,556	90	10
	1986	15,256	1,705	16,961	90	10
New Brunswick	1984	8,544	424	8,968	95	5
	1985	8,370	416	8,786	95	5
	1986	8,511	2/	2/	2/	2/
Nova Scotia	1984	10,257	965	11,222	91	9
	1985	9,969	946	10,915	91	9
	1986	10,129	954	11,083	91	9
Ontario	1984	112,565	2,030	114,595	98	2
	1985	119,996	2,126	122,122	98	2
	1986	121,815	2,204	124,019	98	2
Quebec	1984	65,819	3,350	69,169	95	5
	1985	65,959	3,617	69,576	95	5
	1986	69,770	3,435	73,205	95	5
Saskatchewan	1984	9,575	1,654	11,229	85	15
	1985	9,084	1,476	10,560	86	14
	1986	8,728	2/	2/	2/	2/
CANADA 3/	1984	283,996	17,209	301,205	94	6
	1985	292,667	17,540	310,207	94	6
	1986	298,886	17,196	316,082	95	5

1/ One U. S. quart equivalent to .946 liter.

2/ Confidential

3/ Excludes production in Newfoundland and Prince Edward Island.

Prepared by International Ice Cream Association from data released by Statistics Canada.

This section includes data for 55 countries, including United States and Canada. In some countries, production is reported only by the larger manufacturers and no estimates are available for the output by small establishments. In such instances, the computed production and per capita are incomplete but the reported figures indicate trends.

Country and Product	ANNUAL PRODUCTION In Reported Units	ANNUAL PRODUCTION Converted to U. S. Gallons	PER CAPITA PRODUCTION In Reported Units	PER CAPITA PRODUCTION Converted to U. S. Pints
Ice Cream		923,597,000		10.65
Ice Milk		314,673,000		10.44
Sherbet		49,679,000		1.65
Water Ices		50,937,000		1.69
Mellorine		8,429,000		0.28
Other Frozen Dairy Products		68,656,000		2.28
Total		1,415,971,000		46.99
	(Liters)		(Liters)	
Ice Cream	41,020,000	10,837,000	1.32	2.78
Ice Milk	10,130,000	2,676,000	0.32	0.68
Sherbet & Water Ices	4,450,000	1,176,000	0.14	0.30
Others	1,220,000	322,000	0.04	0.08
Total	56,820,000	15,011,000	1.82	3.84
	(Liters)		(Liters)	
Ice Cream	207,953,000	54,941,000	13.02	27.49
Milk Ices 1/	51,360,000	13,575,000	3.22	6.79
Water Ices	15,039,000	3,973,000	0.94	1.99
Other	12,951,000	3,422,000	0.81	1.71
Total	287,303,000	75,905,000	17.99	37.98
	(Liters)		(Liters)	
Ice Cream	35,500,000	9,379,100	4.70	9.91
Sherbet & Water Ices	11,200,000	3,487,400	1.75	3.69
Total	48,700,000	12,866,500	6.45	13.62
	(Metric Tons)		(Pounds)	
Ice Cream	550	269,500	0.01	0.02
Sherbet & Water Ices	7,250	2,664,375	0.17	0.22
Total	7,800	2,933,875	0.18	0.24
	(Liters)		(Liters)	
Ice Cream	85,500,000	22,589,000	8.68	18.32
	(Liters)		(Liters)	
Ice Cream	58,000,000	15,324,000	0.44	0.93
Ice Milk	21,000,000	5,548,000	0.16	0.34
Sherbet & Water Ices	14,000,000	3,699,000	0.11	0.23
Total	93,000,000	24,571,000	0.71	1.50
	(Liters)		(Liters)	
Ice Cream	316,082,000	83,509,000	12.69	26.80
Freezer-made Milkshake 2/	30,905,000	8,165,000	1.24	2.62
Ice Milk	17,564,000	4,640,000	0.71	1.49
Water Ices	17,279,000	4,565,000	0.69	1.47
Sherbet	2,582,000	682,000	0.10	0.22
Total	384,412,000	101,561,000	15.43	32.60
	(Liters)		(Liters)	
Ice Cream & Related Products	29,000,000	7,662,000	2.17	4.99

Country and Product	ANNUAL PRODUCTION In Reported Units	Coverted to U.S. Gallons	PER CAPITA PRODUCTION In Reported Units	Converted to U. S. Pints
	(Metric Tons)		(Kilograms)	
Ice Cream	12,200	5,978,000	0.41	1.60
Sherbet	1,020	374,850	0.03	0.11
Water Ices	815	299,500	0.03	0.08
Total	14,035	6,652,350	0.47	1.79
	(Liters)		(Liters)	
Ice Cream	8,072,000	2,132,600	3.53	7.46
Ice Milk	1,347,000	355,800	0.59	1.25
Sherbet & Water Ices	394,000	104,100	0.17	0.36
Total	9,813,000	2,592,500	4.29	9.07
	(Liters)		(Liters)	
Ice Cream	37,760,000	9,976,000	7.40	15.62
Water Ices	3,050,000	806,000	0.60	1.26
Total	40,810,000	10,782,000	8.00	16.88
	(Kilograms)		(Kilograms)	
Ice Cream	5,071,800	1,035,000	0.88	3.45
	(Kilograms)		(Kilograms)	
Ice Cream	4,500,000	2,205,000	0.63	2.47
Ice Milk	1,500,000	735,000	0.21	0.82
Sherbet & Water Ices	2,000,000	735,000	0.28	0.82
Total	8,000,000	3,675,000	1.12	4.11
	(Metric Tons)		(Kilograms)	
Ice Cream	20,000	9,800,000	0.44	1.71
Ice Milk	3,000	1,470,000	0.07	0.26
Sherbet & Water Ices	2,000	735,000	0.04	0.13
Total	25,000	12,005,000	0.55	2.10
	(Liters)		(Liters)	
Ice Cream - Industrial	192,852,000	50,951,500	3.50	7.40
	(Liters)		(Liters)	
Ice Cream	321,500,000	84,940,000	5.29	11.18
Sherbet & Water Ices	31,500,000	8,322,000	0.52	1.09
Total Industrial Prod.	353,000,000	93,262,000	5.81	12.27
Small Establishments	99,000,000	26,156,000	1.63	3.44
Total	452,000,000	119,418,000	7.44	15.71
	(Metric Tons)		(Kilograms)	
Ice Cream - Industrial	25,000	12,250,000	2.55	10.00
Ice Cream - Confectionary	12,000	5,880,000	1.22	4.80
Total	37,000	18,130,000	3.77	14.80
Ice Cream		4,536,000		7.72
Sherbet		73,000		0.13
Water Ices		892,500		1.52
Total		5,501,500		9.37
	(Metric Tons)		(Kilograms)	
Ice Cream	212,000	113,680,000	0.34	1.33

Country and Product	ANNUAL PRODUCTION In Reported Units	ANNUAL PRODUCTION Converted to U.S. Gallons	PER CAPITA PRODUCTION In Reported Units	PER CAPITA PRODUCTION Converted to U. S. Pints
	(Liters)		(Liters)	
Ice Cream	3,617,000	955,611	0.02	0.04
	(Liters)		(Liters)	
Ice Cream	27,000,000	7,133,400	7.40	15.62
	(Liters)		(Liters)	
Ice Cream - Industrial	250,000,000	66,050,000	4.38	9.25
Small Establishments	100,000,000	26,420,000	1.75	3.69
Total	350,000,000	92,470,000	6.13	12.94
	(Metric Tons)		(Kilograms)	
Ice Cream & Related Prod.	7,400	363,600	0.70	2.76
	(Liters		(Liters)	
Ice Cream	195,000,000	51,519,000	1.62	3.41
Ice Milk	60,000,000	15,852,000	0.50	1.05
Lacto Ices	126,000,000	86,129,000	2.70	5.70
Water Ices	119,000,000	84,280,000	2.64	5.58
Total	900,000,000	237,780,000	7.46	15.74
	(Metric Tons)		(Pounds)	
Ice Cream & Related Prod.	1,600	784,000	1.36	2.42
	(Liters)		(Liters)	
Ice Cream	400,000	105,680	0.02	0.05
Milk Ices	50,000	13,210	--	--
Sherbet & Ices	8,500	2,245	--	--
Total	458,500	121,135	0.02	0.05
	(Metric Tons)		(Kilograms)	
Ice Cream	19,500	9,555,000	0.45	1.77
	(Metric Tons)		(Kilograms)	
Dairy Ice Cream	1,500	735,000	0.50	1.96
Ice Milk	200	98,000	0.07	0.27
Water Ices	500	184,000	0.17	0.50
Sherbet	1,200	441,000	0.40	1.18
Arabic Ice Cream	300	147,000	0.10	0.39
Total	3,700	1,605,000	1.24	4.30
	(Liters)		(Liters)	
Ice Cream 1/	149,448	39,484	0.09	0.18
	(Liters)		(Liters)	
Ice Cream	2,500,000	660,500	6.85	14.46
	(Liters)		(Liters)	
Ice Cream	4,858,800	1,283,700	0.34	0.71
Bars & Popsicles	3,900,800	1,030,600	0.28	0.58
Total	8,759,600	2,314,300	0.62	1.31
	(Liters)		(Liters)	
Ice Cream	80,000,000	21,136,000	1.00	2.12
Sherbet & Water Ices	10,000,300	2,642,000	0.13	0.27
Total	90,000,000	23,778,000	1.13	2.39
	(Liters)		(Liters)	
Industrial Ice Cream	875,000	231,000	0.04	0.08
Other Related Products	2,400,000	634,000	0.10	0.21
Total	3,275,000	865,000	0.14	0.29

Country and Product	ANNUAL PRODUCTION In Reported Units	ANNUAL PRODUCTION Converted to U.S. Gallons	PER CAPITA PRODUCTION In Reported Units	PER CAPITA PRODUCTION Converted to U. S. Pints
	(Liters)		(Liters)	
Ice Cream	15,294,000	4,041,000	1.06	2.24
Water Ices	6,555,000	1,732,000	0.45	0.95
Other	21,849,000	5,772,000	1.51	3.19
Total Industrial	43,698,000	11,545,000	3.03	6.40
Small Establishments	34,000,000	8,981,000	2.36	4.98
Total	77,698,000	20,526,000	5.39	11.38
	(Liters)		(Liters)	
Ice Cream	58,800,000	15,535,000	17.98	17.95
Frozen Confections	6,000,000	1,585,000	1.83	1.87
Total	64,800,000	17,120,000	19.81	41.82
	(Liters)		(Liters)	
Ice Cream	2,200,000	581,000	0.07	0.07
	(Liters)		(Liters)	
Ice Cream	43,172,000	11,406,000	10.17	21.09
Soft Ice Cream	2,692,000	711,000	0.65	1.36
Sherbet	2,022,000	534,000	0.49	1.01
Total	47,886,000	12,651,000	11.51	24.28
	(Metric Tons)		(Kilograms)	
Ice Cream	26,500	12,985,000	0.27	1.06
Ice Milk	8,700	4,263,000	0.09	0.35
Sherbet	12,800	4,704,000	0.13	0.38
Total	48,000	21,952,000	0.49	1.79
	(Liters)		(Liters)	
Ice Cream & Ice Milk	4,665,000	1,232,500	0.26	0.55
	(Metric Tons)		(Kilograms)	
Ice Cream - Industrial	19,200	10,437,000	0.51	2.00
Ice Cream - Confectionary	12,800	6,272,000	0.34	1.34
Total	32,000	16,709,000	0.85	1.34
	(Metric Tons)		(Kilograms)	
Ice Cream	8,969	4,394,810	0.89	3.48
	(Liters)		(Liters)	
Ice Cream	8,269,000	2,184,670	3.24	6.87
	(Liters)		(Liters)	
Ice Cream	18,203,600	4,809,000	0.55	1.16
Sherbet	22,351,000	5,905,000	0.67	1.42
Soft Serve	4,089,000	1,080,000	0.12	0.26
Water Ices	3,860,000	1,020,000	0.12	0.25
Milk Ices	4,342,000	1,147,000	0.13	0.28
Total	52,845,000	11,961,000	1.59	3.37
	(Liters)		(Liters)	
Ice Cream	95,500,000	25,231,000	2.44	5.18
	(Liters)		(Liters)	
Ice Cream	105,060,000	27,757,000	12.57	26.54
Water Ices	6,510,000	1,720,000	0.78	1.65
Soft Ice Cream	7,850,000	2,074,000	0.94	1.98
Total	119,420,000	31,551,000	14.29	30.17

Country and Product	ANNUAL PRODUCTION In Reported Units	ANNUAL PRODUCTION Converted to U.S. Gallons	PER CAPITA PRODUCTION In Reported Units	PER CAPITA PRODUCTION Converted to U. S. Pints
	(Liters)		(Liters)	
Ice Cream & Related Prod.	48,739,000	12,877,000	0.742	15.66
Ice Cream		8,697,754		3.72
Ice Cream Stick & Novelties		3,848,267		1.64
Total		12,546,021		5.36
	(Liters)		(Liters)	
Ice Cream	1,555,000	410,831	0.21	0.45
	(Liters)		(Liters)	
Ice Cream & Related Prod.	46,400,000	17,562,000	0.90	1.89
	(Liters)		(Liters)	
Bulk	119,271,000	31,511,000	2.11	4.45
Soft Ice Cream Mix 4/	6,979,000	1,843,000	0.12	0.25
Home Packs	89,174,000	23,559,000	1.58	3.33
Water Ices	20,397,000	5,389,000	0.36	0.76
Other Stick Confections	10,366,000	2,739,000	0.18	0.38
All Other	50,899,000	13,447,000	0.90	1.90
Total	297,086,000	78,488,000	5.25	11.07
	(Liters)		(Liters)	
Ice Cream & Related Prod.	3,500,000	924,700	1.19	2.51
	(Metric Tons)		(Kilograms)	
Ice Cream	158,500	77,665,000	0.59	2.30
	(Liters)		(Liters)	
Ice Cream	2,228,300	588,700	0.13	0.28
Ice Milk	12,842,600	3,393,000	0.77	1.62
Sherbet & Water Ices	4,911,900	1,297,800	0.29	0.62
Total	19,982,800	5,279,500	1.19	2.52
	(Metric Tons)		(Kilograms)	
Ice Cream - Industrial	19,200	9,408,000	0.84	3.30
Small Establishments	3,500	1,715,000	0.15	0.60
Total	22,700	11,123,000	0.99	3.90

1/ Includes aerated milk-based confections and milk-based mixes for soft serves and thick shakes.
2/ Freezer-made milkshake derived by applying 40% overrun to milkshake base.
3/ Includes imported ice cream and sherbet.
4/ Converted into ready-made soft ice cream

1 Liter = .2642 U. S. Gallons
= 2.1114 U. S. Pints

1 U. S. Gallon of Ice Cream or Ice Milk = 4.5 Pounds
1 U. S. Gallon of Sherbet or Water Ices = 6.0 Pounds

1 Kilogram = 2.205 Pounds
= .4900 U. S. Gallons of Sherbet or Water Ices
= 3.920 U. S. Pints of Ice Cream or Ice Milk
= 2.940 U. S. Pints of Sherbet or Water Ices

1 Metric Ton (1,000 Kilograms) = 2,205 Pounds
= 490.0 U. S. Gallons of Ice Cream or Ice Milk
= 367.5 U. S. Gallons of Sherbet or Water Ices

Prepared by the International Ice Cream Association from data supplied by Agriculture Attaches of the U. S. Department of Agriculture, or from government or trade statistics.

Year	Ice Cream			Freezer-made Milkshake 2/	Ice Milk	Sherbet	Water Ices	Total All Products
	Hard	Soft	Total					
	(Thousand Liters) 3/							
1971	254,591	17,884	272,439	10,826	7,901	3,519	12,847	307,532
1972	259,851	18,066	276,917	9,369	13,674	3,701	13,588	317,249
1973	256,954	18,221	275,175	10,304	13,879	3,914	15,402	318,674
1974	259,164	18,580	277,744	12,003	11,429	3,841	11,583	316,600
1975	266,515	20,717	287,232	11,820	12,675	3,337	12,602	327,666
1976	258,850	20,721	279,571	13,219	14,084	3,578	11,665	322,117
1977	269,637	21,536	291,173	15,364	15,219	3,122	11,398	336,276
1978	266,150	21,465	287,615	14,718	15,158	3,528	11,786	332,805
1979	289,748	17,921	307,669	24,112	12,130	3,664	12,744	360,319
1980	295,215	16,718	311,933	26,803	12,446	3,170	12,924	367,276
1981	292,421	19,549	311,970	28,094	13,429	2,900	13,074	369,467
1982	284,898	18,541	303,439	27,391	13,345	2,486	14,249	360,910
1983	293,784	17,805	311,589	28,239	13,435	3,194	16,266	372,723
1984	283,996	17,209	301,205	26,244	16,929	2,900	19,496	366,774
1985	292,667	17,540	310,207	28,869	16,481	2,556	15,886	373,999
1986	298,886	17,196	316,082	30,905	17,564	2,582	17,279	384,412

1/ Excludes production in Newfoundland and Prince Edward Island.

2/ Freezer-made milkshake derived by applying 40% overrun in milkshake mix.

3/ One U. S. quart equivalent to .946 liter.

Prepared by the International Ice Cream Association from data released by Statistics Canada.

Month	Ice Cream			Freezer-made Milkshake 2/	Ice Milk	Sherbet	Water Ices	Total All Products
	Hard	Soft	Total					
	(Thousand Liters) 3/							
January	17,972	531	18,503	1,672	691	173	341	21,380
February	18,814	492	19,306	1,852	853	286	734	23,031
March	22,812	743	23,555	2,474	1,276	198	1,117	28,620
April	28,132	1,597	29,729	2,526	1,652	239	2,028	36,174
May	31,035	2,119	33,154	3,165	2,139	223	5,323	44,004
June	33,656	3,111	36,767	3,101	2,110	289	2,617	44,884
July	33,979	3,263	37,242	3,424	2,795	321	2,125	45,907
August	27,501	2,210	29,711	3,576	1,999	288	1,464	37,038
September	23,229	1,198	24,427	2,712	1,389	154	826	29,508
October	21,025	1,024	22,049	2,521	1,208	123	277	26,178
November	20,384	495	20,879	1,767	820	115	256	23,837
December	20,347	413	20,760	2,115	632	173	171	23,851
YEAR	298,886	17,196	316,082	30,905	17,564	2,582	17,279	384,412

1/ Excludes production in Newfoundland and Prince Edward Island.

2/ Freezer-made milkshake derived by applying 40% overrun to milkshake mix.

3/ One U. S. quart equivalent to .946 liter.

Prepared by the International Ice Cream Association from data released by Statistics Canada.

Province	1970	1975	1980	1983	1984	1985	1986
			(Liters) 1/				
Alberta	16.06	17.12	14.59	14.69	15.42	16.08	16.56
British Columbia	13.26	13.71	14.44	12.46	10.67	10.97	11.09
Manitoba	15.41	18.65	20.43	19.92	18.20	17.37	15.75
New Brunswick	13.54	14.01	10.83	12.39	12.53	12.22	2/
Nova Scotia	14.97	15.60	13.96	13.42	12.88	12.40	12.52
Ontario	12.80	11.22	13.06	13.56	12.80	13.46	13.49
Quebec	12.17	12.46	12.35	10.77	10.56	10.56	11.04
Saskatchewan	12.44	12.69	11.26	10.94	11.14	10.37	2/
CANADA 3/	13.13	13.06	13.38	12.87	12.32	12.57	12.69

1/ One U. S. quart equivalent to .946 liter.

2/ Confidential.

3/ Excludes production and population for Newfoundland and Prince Edward Island.

Prepared by the International Ice Cream Association from data released by Statistics Canada.

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(202) 296-4250